TYPE OF CLINICAL INTERVENTION SHOWS DIFFERENTIAL EFFECTS ON THE DYNAMICAL RECOVERY PROCESS OF MOTIVATION FROM A SUICIDAL STATE FOR U.S. MILITARY PERSONNEL

by

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ABSTRACT

Motivation is crucial in self-regulation for understanding the recovery process from a suicide mode. The current study synthesized the self-regulation of motivation model (SRM, Sansone, & Thoman, 2005) with fluid vulnerability theory (FVT, Rudd, 2001, 2006), both within the framework of dynamical systems theory, and thus propose a preliminary SRM system. Motivation of "why" and "how" were measured using reasons for living and meaning in life, and suicide ideation was measured by the Beck Scale for Suicide Ideation (BSSI). Ninety-seven U.S. military personnel were randomly assigned to one of the three intervention conditions: reasons for living regulation task with crisis response plan (AUGMENT), crisis response plan (CRP), or treatment as usual (TAU). Participants reported the three variables at three different time points: baseline, 1 month, and 3 months after intervention. Repeated Measure of Actor-Partner Interdependence Model (RM APIM; Kenny et al., 2006) from a dynamical systems perspective was used to investigate four research questions using an overdummy coding technique and creating changes in the variables for two or three reciprocal changes, either in all conditions together or each intervention condition separately (Butner & Story, 2010). Results suggested a unique dynamic recovery process of the motivation system according to each condition. The AUGMENT condition underwent negative changes in the absence of information in the system based on types of reasons for living. The CRP condition showed negative coupling effects of suicide ideation while meaning in life was stabilized.

The TAU condition showed negative coupling effects of suicide ideation while types of reasons for living were stabilized.

Dedicated to Bhikkhuni, Kim, GuyIm

(Abbess, Ji-Hyang Kim Sunim or 김지향 스님)

at Gosan BaekWoonSa (고산 백운사)

TABLE OF CONTENTS

LIST OF FIGURES

Figures

LIST OF TABLES

Tables

ACKNOWLEDGEMENTS

I am an orphan.

My original name is A-Rin Yoo (maiden name: Sungchoon Kim; preferred name: Aviva Sinclair). I've never met my biological parents, but I feel grateful to them for giving me life and finally being taken to the Abbess of a Buddhist women's monastery (First: Boomoon-sa in Seoul, second: Heungcheon-sa in Gunsan) of the Jogye order, Gyu-Im Kim (a.k.a. Ji-Hyang Kim Sunim). The name of the monastery, which is located in Gosan (High Mountain) in Jeonbook province in South Korea, is BaekWoonSa (White Cloud Temple). I was three years old at the time, according to the Korean age system, and two in the American age system. Abbess Kim emphasized the importance of understanding the natural order. A more literal translation of the Korean term for "natural order" is "systems of nature." I learned how to honor this system in depth from Abbess Kim by observing her daily routine of waking up at 3:00 a.m., meditating, chanting, giving sermons, counseling, and performing monastery labor. By watching the benevolent behavior of my adoptive grandmother, In-Soon Im, the biological mother of Abbess Kim, not only toward the temple's residents but also toward lay followers and temple visitors, I also learned how to love people and how important it is to be wise and virtuous. From Wan-Sun Kim, a close friend of In-Sun who was living at the temple as well and who I consider my other grandmother, I learned how to adjust between the world of the temple and the secular world. They taught me that these are not two separate

spaces, but rather the two forms a gateless gate. I cannot resist saying to Sunim and my grandmothers how grateful to you I am for what you've done for me all the way through my developmental process. 감사합니다, 스님 그리고 할머니.

During my elementary school years, I was not interested in studying at all, as I did not have any concept of its importance. Each day was too short for even just spending time with my friends and adoptive sisters at the temple, and I became dubious about why people study so hard during my middle school years. However, I developed my motivation to study when I was admitted into Gosan High School after scoring second in the high school entrance exam and earning a full scholarship. All except a few of my middle school friends who scored high enough on the exam chose to study in a city. I put minimal effort into preparing for the entrance exam, and the unexpectedly high score that I received motivated me to maintain a first-place ranking throughout high school. I became interested in many subjects under the guidance of my three home room teachers: Gyu-Seok Gang (Earth Science), Gae-Chun Gwon (physics), and Hee-Bok Lee (World Geography). Thank you so much for teaching me for three years and providing me with direction when I applied to Chonnam National University.

After entering Chonnam National University, again with a full scholarship, in Gwangju, one of Korea’s largest cities, best known as the symbol of South Korean democracy and the home of artisans and culture, I met my college mentor, Seung-Hee Rho. Professor Rho, a professor of English literature who specializes in the works of Shakespeare, wrote a recommendation letter for me when I applied for Ph.D. programs in the United States. Professor Rho's undergraduate course in Shakespeare changed my intellectual state because of the many texts to which that I was introduced—from Karl

Marx to Rene Gerard—that we used to interpret one of three of Shakespeare's tragedies. I was assigned to examine *Othello, the Moor*, the story of a military general who dies by suicide at the end of the play. A few months ago, Professor Rho informed me that the course I took was experimental and that she was very surprised that I still remember it. She also told me that it is no longer possible to offer that type of course due to low probable enrollment. At the time, though, I remember thinking that I would die without regret if I could just spend the rest of my life doing research. By delving into the works of Shakespeare, I became more curious about human nature, actual human relationships, and human psychology.

Meanwhile, I met my husband, Michael Sinclair, who had been hired by the provincial department of education to teach English to middle and high school students. Before coming to Korea and after receiving his undergraduate degree in chemical engineering at McGill University in Canada, he had worked for Halliburton. Later, after returning to the United States, he earned a Ph.D. in neuroscience at the University of Miami, and he is currently a postdoctoral fellow in biomedical informatics at the University of Utah. Just as Abbess Kim showed me how to live my daily life, my husband, Michael, his parents (retired M.D.s, Stanley and Helene Sinclair), his uncle, (Jack Greener M.D.), his relatives (former math teachers, aunt Carol Greener and sister Linda, now a successful math tutor), Linda's sons Wesley, who is into geometry at the current age of six, and three-year-old Leo, who is into selfies, drawing, and a mimetic desire to emulate his brother, have each shown me how to live life in the United States. I love and respect them, and I feel blessed to have met these people through my husband. In addition, I feel blessed to have Michael as my husband. We share many philosophical,

spiritual, and intellectual interests, and it has been fun and a joy to learn and grow together. We have an additional shared interest in raising cats, first our female mixed-color, Mocha, and now our male orange tabby, Sinbad. Thank you, Michael, and I love you too! I see you in me and me in you. I feel thankful, respectful, and grateful to have met your parents and your relatives and to know them all.

To my Korean friends who have been keeping me updated on Korean current events via the Korean social media app Kakao Talk and Kakao Story and whom I have known and been friends with since before we entered elementary school: I love and respect each one of you, and I don't want to single out only a few of you by name.

After my immigration to the United States, following my then-fiancé Michael, my thirst to understand human nature increased to an even greater degree through an accidental encounter with Dr. Philip McCabe, currently the chairman of the Department of Psychology at the University of Miami, in front of one of the elevators in the Psychology building. Professor McCabe had taught Michael in one of his graduate neuroscience courses, and he graciously introduced me to Dr. Charles S. Carver, distinguished professor. I later joined a lab with Dr. Carver and Dr. Sheri L. Johnson, who is currently a professor at the University of Berkeley.

After I had spent several months as a volunteer in Dr. Carver's lab, Dr. Johnson suggested that he hire me as a part-time research assistant. Dr. Johnson and Dr. Carver wrote the other two recommendation letters for my graduate program applications. Both of them taught me that a research cycle finishes with publishing what we have found in order to communicate about it with others and that this is the purpose of research, not just to quench my own curiosity. I sincerely thank Dr. Carver for not firing me on my first

day as a volunteer when I made all the faculty, graduate, and staff members evacuate the psychology building by causing a fire in the microwave after heating a bag of popcorn at too high a power level. I wasn't particularly hungry for popcorn that day, unfortunately, but I wanted to try it out after seeing other students make popcorn at school. I still remember Dr. Carver passing by me holding in his arms Calvin, his pet dog, a black shaggy terrier, and looking at me in slow motion, at least according to my memory, while I made a timid and fearful attempt at saying, "I'm sorry." I will not forget your training and the great opportunities that each of you provided! I also spent many enjoyable moments with Calvin teaching him to play games with me.

Unlike in my research assistant years, when I could read, think, and freely ponder interesting topics in psychology, it was quite a challenging process for me to adjust to a structured graduate program. I feel grateful to all of the faculty members who participated in making the decision to let me into this program, both for your visible and invisible support throughout the turbulent process of completing my dissertation at the University of Utah. I applied for a Ph.D. program, but I also got free courses in the self-regulation of motivation and emotional regulation.

I am deeply indebted to my dissertation co-mentors, Dr. Carol Sansone and Dr. Craig J. Bryan, presidential scholar, not only for their intellectual challenges and personal inspiration, but also for their patience and support in allowing me room to struggle, fail, and recover in the process of learning. Specifically, just as a mother provides a womb for an egg to incubate, Dr. Sansone provided me with a protected environment to pursue my Ph.D. for seven years. Without her intercession at the right times, I would still be writing my dissertation now. I sincerely thank you for your guidance in how to think and think

smart. I also wish to thank Dr. Bryan for providing me with an additional year in the two-year dissertation writing process when I published my first author paper with him, as well as for providing me with invaluable data sets to work with for my dissertation and papers. I also thank his whole team at the National Center for Veterans Studies and their collaborators throughout the country who put in valuable time and effort. From Dr. Bryan, I learned the importance of speed, accuracy, and quality of research. I also thank you, Dr. Bryan, for providing me with financial support for Fall 2017 as your full-time research assistant while I revised my dissertation.

I am wholeheartedly indebted to my dissertation committee member Dr. Jonathan E. Butner for his inspiration, his mentoring in dynamical systems thinking, and his guidance throughout his innovative collaborative projects. He never hesitated to give sound advice that may have been bitter in the short-term but sweet in the long-term and that eventually managed to break the unrealistic fear that was preventing me from trying new things. Every collaboration project that I have been involved in upon my admission appears to me to have been strategically designed to lead me to ultimately attempt a synthesis between dynamical systems theory and current psychological theories. My dissertation project turned out to be an emergent harmonious property of the projects in the method and dynamical systems thinking on which Dr. Butner has guided me, together with my two mentors and Dr. Zoe Zachary. I would also like to thank my other committee members. I thank Dr. Paul White for graciously joining late in the game, for his moral support, and for his graduate seminar course in human relations. I am also grateful to Dr. Zoe Zachary in the Computer Science Department.

All of my committee members showed me that attaining a Ph.D. means that the

individual never stops learning new things with increased speed, and that this requires a continuous destruction and reformation of the state of the self. What I believe I learned so far equals Δ (1 - *what I think I know now*).

From time to time, I recall the association between time and human relationships as understood in Hinduism and Buddhism. The smallest unit of time is the *kṣaṇa* (Sanskrit: ण), about .132 sec., and the largest unit is the *Kalpa* (Sanskrit: क प), which equals four hundred billion three thousand and two hundred years:

500 kalpas equal brushing past a person;

1000 kalpas equal being born as compatriots;

2000 kalpas equal accompanying a person for a day;

3000 kalpas equal staying under the same roof for a day;

4000 kalpas equal being born as the same ethnic group or race;

5000 kalpas equal being born in the same village;

6000 kalpas equal an intimate relationship for a day;

7000 kalpas equal the relationship between husband and wife;

8000 kalpas equal the relationship between parents and offspring;

9000 kalpas equal the relationship between brothers and sisters; and

10000 kalpas equal the relationship between a teacher and a pupil.

Finally, I am indebted to the student organization SyNC, which stands for "Systems 'n Coffee," presumably named after the Strogatz book Sync and guided by Dr. Butner, Dr. Brian Baucome, and Dr. Pascal Deboeck. I also thank the Psychology department staff (including the janitors of the psychology building) for constantly looking after the needs of the students and faculty.

In the end, I learned that many things, very important and meaningful things in life, appear to be given by accident and without the price that usually accompanies them: their true, hidden costs, effort, and commitment. One example of this from my life in Korea is how South Korean democracy was transformed and has been maintained through the sacrifice and blood of many citizens, with citizens of Gwangju very prominent among them. Many students of Chonnam National University were wounded or died for democracy during the protests of the 1980s. Most importantly, I learned how much the welfare of a nation depends on the service of military personnel. Thank you, military personnel and veterans, for your service and sacrifice, including the American veterans of the Korean War who fought for South Koreans. After understanding the true costs of freedom, I could not help bursting into tears when I read the prayer below:

A PRAYER FOR PEACE

May we see the day when war and bloodshed cease,
When a wondrous peace will embrace the world,
When nation will not threaten nation,
When mankind will not experience war.
For all who inhabit this world shall realize
That we have not come into being
To argue, to hate, or to be violent.
For we have come into being
To praise, to labor, and to love.
Compassionate God,
bless us with the power of compassion.

Fulfill the promise conveyed in Scripture: I will bring peace to the land,

And you shall lie down and no one shall terrify you.

I will rid the land of vicious beasts

And it shall not be ravaged by war.

Let love and justice flow like a mighty stream.

Let peace fill the earth as the waters fill the sea.

Amen."

—Hayyim Guri

In this context, I have to confess that my energy at the later stage of my dissertation came from my war with the system. My goal was to add one more person to the Ph.D. population: not just a Ph.D., but an orphan Ph.D. Although we are living in the 21st century, an individual's sustainability is not guaranteed from birth, and individuals need to earn a living to meet their basic needs. In this type of society, it is paramount for any individual, especially an orphan, to do everything possible to acquire the invaluable asset of a higher education. Hence, all of the people whom I have addressed here are supporters of the project of transforming an orphan into a Ph.D.

As Rolf Landauer said during his lecture recalling Hermann Haken's session in 1972, "I found myself among people with comparable interests and a comparable sense of values. I was no longer an orphan!" At the completion of this work, I have to borrow his line:

"I am no longer an orphan."

CHAPTER 1

INTRODUCTION

When the French philosopher and novelist Jean-Paul Sartre wrote that "*Life is C between B and D*," he was indicating that "Life is a Choice between Birth and Death." Some individuals, such as in cases of martyrdom, opt for suicide when they hold the belief that suicide is a way to elevate or save one's own or others' souls (Battin, 2015; Olechowicz & Matusitz, 2013). In other cases, suicide represents a choice to die by euthanasia in order to escape from pain and suffering (Battin, 2015). The decision to commit suicide is also attributable to clinical conditions related to military service.

Suicide

Suicide is a critical problem among U.S. civilians and military personnel and veterans. Indeed, it is the second leading of cause of death among this population, exceeding the number of combat-associated losses in both Iraq and Afghanistan (U.S. Department of Defense, 2012). Furthermore, the rate of suicide has doubled in this population over the past decade (Ramchand, Acosta, Burns, Jaycox, & Pernin, 2011). In response to this urgent problem, researchers and theorists have focused on understanding the emergent properties of suicidal thoughts and behaviors over time, but less attention has been paid to understanding the properties of the recovery process for military personnel and veterans who seek intervention for suicidal thoughts and behaviors. One

model for understanding the difference between risk and recovery is fluid vulnerability theory (FVT) (Rudd, 2001, 2006), which proposes that, to prevent suicide and help individuals recover from acute suicidal states, suicide risk is best understood as a multidimensional phenomenon.

Fluid Vulnerability Theory

Grounded within the FVT is the concept of the suicide mode, which describes the structure of an active suicide crisis and the process that leads from considering death by suicide back to choosing life. The suicidal mode emerges as the result of an interactive coordination among cognitive, emotional, behavioral, and physiological factors. Among these factors are an individual's cognitive/emotional subsystems. Understanding how these subsystems operate is crucial for understanding the emergence and resolution of suicide risk since they reflect an individual's appraisal of environmental cues and internal states (Bryan, Butner, Sinclair, Bryan, Hesse, & Rose, 2017). A recent study by Bryan et al. (2017) has supported this theoretical notion. The authors demonstrated that different subsystems interact with one another in different ways over time among those who die by suicide than those who do not. In their study, Bryan et al. found different patterns of coordination among the five subsystems of the suicide mode were at different periods of time. In general, life events themselves triggered changes in the emotional and cognitive subsystems of those who died by suicide, whereas emotions and cognition drove emotional responses to triggers among those who died of other causes. This result suggests that triggers preceded changes in the cognitive and emotional subsystems for suicides while negative emotions preceded changes in response to triggers for individuals dying other causes of death. These findings underscore the importance of the cognition

and emotional subsystems for understanding the emergence of suicidal behavior over time. In turn, they imply that a certain subsystem cannot be thought of as independent of other subsystems. Rather, a change in one subsystem affects other subsystems, and vice versa, as part of a holistic and dynamic suicide mode.

Motivation

Theorists (e.g., Lazarus, 1991; Sartre, 1939) have understood motivation as a crucial bridge with respect to cognition and emotional responses and defined it as psychological force (Touré-Tillery & Fishbach, 2014). I argue that, in suicide, motivation serves as one a central part of the self-regulation system that informs one's knowledge and understanding of the self and one's emotional state (Baumeister, Maranges, & Vohs, 2017). Motivation helps individuals to actualize and/or sustain their choices/decisions as a behavior. Hence, from an organismic perspective, motivation sustains a process that is aimed at completing a goal within a self-regulation system. In suicide, there is a motivation to reach an organismic destination (death), which is understood as one option among a series of choices/decisions that connect different levels of commitment to multiple goals one has set over one's lifetime. Motivation is a strong organismic influence on individuals who go through intervention to recover from a suicide mode. Hence, one possible mechanism for managing suicide risk is to explore motivations by appraising the reasons that one lives and/or the meaning the at-risk individual derives from life. These reflect different levels of motivation in the self-regulation of motivation model (Sansone & Thoman, 2005).

Self-Regulation of Motivation Model

According to Sansone, Thoman, and Smith (2010), motivation includes "dimensions that can be intentionally regulated by a person over time and context. To better understand how individuals vary, therefore, we must consider the self-regulation process" (p. 2). The self-regulation of motivation (SRM) model suggests that two kinds of motivation are important factors that help individuals to sustain their behavior over time: motivation to reach a goal (goal-defined) and motivation based on experience (experience-defined). The first type of motivation is driven by one's goal at the outset of an activity, and the activity itself is a means to an end. Traditionally, theorists and researchers have defined goal-defined motivation as *external motivation* (Guastello, 1984). For instance, an individual may want to get an A in a certain course. Getting the A, in this case, is a target goal; as such, it provides a task-specific guideline.

According to Herackiewicz and Sansone (1991) there are even different levels of goals that drive motivation. First, target goals are a lower level goal, framed in terms of "what"; purpose goals are more abstract and are framed in terms of "why." Hence, an individual may work to complete the task (e.g., the target goal) in order to be rewarded for completing the task quickly (e.g., the purpose goal). According to traditional definitions, a purpose goal is extrinsic; in other words, the reason that individuals engage an activity the way they do is not for the activity itself, but because engaging in the activity in a particular way gets them something else that they want (e.g., a reward). However, Harackiewicz and Sansone (1991) questioned this traditional definition of a purpose goal and its extrinsic-oriented assumptions by extending goal-defined motivation to include target goals, which "guide an individual's behavior," and purpose goals, which

"suggest the reasons for the behavior" (p. 21).

Target Goal and Purpose Goal as "What" and "Why"

In the above example of a target goal, I assume that an individual aims to get an A in the course (target goal). Yet, at the same time, this goal is based on the reason that the student wants to achieve the A: that is, to gain mastery over the class materials (purpose goal). When we extend the SRM model in the context of suicide, for instance, an individual may be motivated to die in order to escape from the self (Baumeister, 1990) due to a perceived failure at a meaningful task that may be related to socioeconomic consequences (Bryan et al., 2017; Rudd, Goulding, & Bryan, 2011). The individual's goal to die entails both target and purpose goals (Harackiewicz & Sansone, 1991; Sansone et al., 2010) in that "to die" reflects "what" his or her target goal is and "to escape from self" reflects "why." The goal of escaping the self can, therefore, be defined as a purpose goal, which is a different level of goal-defined motivation, according to the SRM model (Harackiewicz & Sansone, 1991; Sansone et al., 2010). A counter example is that of an individual whose reason to live is to take care of his or her family members. In this individual's case, "to live" is a target goal, and "to take care of his or her family members" is the purpose goal. These two examples highlight the fact that suicide can be understood, in part, with respect to the two sublevels of goal-defined motivation. Specifically, understood as an extension of the SRM model, motivation influences the decision to live or to die (target) and for what reason (purpose).

The Relationship Between "What" and "Why"

The SRM model stresses that, although sublevels of goal-defined motivation may initially relate to one's self-regulation, each type of goal-defined motivation may differ. For instance, target goals can be thought of as task-specific guidelines for a task performance or for a life that influences an individuals' behaviors and provides feedback/feedforward to their self regulatory system. On the other hand, purpose goals can evolve and/or change over time as one achieves/maintains target goals. Specifically, an individual may aim to get an A in a course. In the process of getting the A, this specific target goal may contribute to the evolution of the purpose goal: mastering the materials being provided about the topic of the course. According to Harackiewicz and Sansone (1991), for instance, the stronger the relationship between target goals and purpose goals, the more an individual attains internal motivation; thus, the individual even internalizes a target goal that was externally provided in conjunction with a purpose goal. A target goal for a living system that wants to continue living would be "life itself," and "to self-sustain" is its purpose goal.

Experience-Defined Motivation as "How" in the Process of Life

Goal-defined motivation may vary depending upon the point at which individuals are in their life span, their surrounding environmental factors, such as the cultural zeitgeist (Sullivan-Singh, Stanton, & Low, 2015), or the influences of their social networks (Baumeister et al., 2017). For this reason, it is also important to take into account experience-defined motivation in order to understand the self-regulation of motivation in the context of suicide. Experience-defined motivation is motivation that arises, evolves, or is generated in the task engagement process. It is directly and/or

indirectly interdependent with the initial reasons for undertaking the task and/or letting life evolve, and these reasons comprise the goal-defined motivation (Sansone & Thoman, 2005). If such experience-defined motivation is important in the process of recovery from an acute suicidal state, past and/or future experiences may shape the goal-defined motivation. For instance, the self-regulation of the motivation system may produce a subsequent cycle of motivation regulation. Since the two sublevels of motivation (i.e., goal-defined and experience-defined) coordinate, it is reasonable to suggest that experience-defined motivation may have a recursive relationship with goal-defined motivation in feedback/feedforward loops that generate and/or reinforce the reasons that individuals choose to go on living.

Meaning in Life as "How" in the Process of Life

It is, thus, important to consider the relationship between goal-defined motivation and experience-defined motivation in order to understand the emergence and/or recovery process from suicide over time, especially examining differences in pre- and post-interventions. Even if goal-defined motivation varies for an individual over time and is expected to have a recursive relationship with experience-defined motivation, the SRM model (Sansone & Thoman, 2005) emphasizes that experience-defined motivation is critical and may be more proximal to momentary self-regulation than goal-defined motivation over time. Goal-defined motivation (i.e., one's reasons for living) is expected to relate to how an individual lives his or her life or how he or she devises a strategy to experience life and/or develops meaning to sustain life after experiencing a suicide ideation/attempt. In suicide, as Franz Kafka stated, "the meaning of life is that is stops."

Possible Patterns of Experience-Defined Motivation in a Recovery Process From the Suicide Mode

In the suicide mode, experience-defined motivation could lead individuals to choose from among different life patterns:

1. Individuals may tend to feel apathetic (e.g., less interested and/or bored) toward sustaining their lives, feel that there is less meaning in life and/or be unable to regulate the motivation system in general by changing the current suicidal state to a life state that includes interest and/or meaningfulness in living, especially for those with clinical conditions (Maltsberger, 2000; van Tilburg, & Igou, 2011);

2. Individuals may search for ways to change their current apathetic and/or suicidal state to one that is associated with a trade-off between short-term and long-term effects—such as alcohol abuse, drug abuse, self-injury, and/or other impulsive behaviors—and/or to a different state, such as seeking therapy for instance.

3. Individuals may attempt suicide and/or die by suicide;

4. Individuals may stay in one of the aforementioned states for a certain period of time and then intermittently switch between the states.

Over a period of time during a suicide ideation period, it is possible for patterns of switching to emerge among the three states.

These patterns of behavior may represent the operations of an experience-defined motivation that, paradoxically, sustains their motivation system. Patterns of motivational ideation from (3) to (2) and/or (1) occur for individuals with a history of suicide attempt(s), while a pattern of switching between (1) and (2) will occur among individuals who are in a suicidal mode, but in the absence of suicide attempt(s).

Theoretically, both types of motivation are critical for maintaining and/or changing a certain state of self-regulation in life over time, but they may be differentially supported by the context for different individuals and may have distinct relationships with motivation under the influence of these contextual factors. Methodologically,

measuring the suicide process over time is critical to understanding the nature of suicide motivation, as suggested by both the SRM model and the FVT. However, many motivation theories limit their operating definitions of motivation to goal-defined motivation. Goal-defined motivation, however, is associated only with why individuals initiate a certain activity, and it is relatively less associated with how the process itself generates additional components that may help to coordinate and correct the motivation system in the absence of specific instructions. The existence of the latter phenomenon explains why it is important to take experience-defined motivation into account in any comprehensive theory of motivation.

An Extension of the Self-Regulation of Motivation Model in the Context of Suicide

Extending the SRM model, I will understand purposes and goals the reasons why people live through a suicide context. Furthermore, personal reasons for living appear to be important to understanding the self-regulation of motivation in the context of suicide. In line with the SRM model, researchers have suggested that the reason individuals do *not* die by suicide may be related to their adaptive and self-maintaining mechanisms, which are associated with life-oriented beliefs about why they need to live (Linehan, Goodstein, Nielsen, Chiles, & Garfield, 1983). Individuals' life-oriented beliefs are comparable to the cognitive and cognitive-behavioral aspect of suicide attempts (Beck, Schuyler, & Herman, 1974). Previous studies have posited that one's reasons for living are an indication of agency, and that having meaning in life is a pathway to maintaining the self-regulation system (Snyder, Harris, Anderson, Holleran, & Irving, 1991).

In their pioneering work, Linehan et al. (1983) proposed that individuals who are

at risk of suicide are poor at reasoning through the life-oriented goals that might otherwise buffer them from suicide. To test their notion that reasons for living influence suicidal ideation, the researchers studied diverse populations, including students, middle-aged adults, employees, and senior citizens. Individuals were asked to write their reasons to die by suicide, the reasons why they did not attempt suicide, and how the latter protected them from suicide, and their responses resulted in a list of 343 reasons for living. Linehan et al. (1983) reduced these reasons to 48 items with six factors: (a) Fear of Suicide, (b) Fear of Social Disapproval, (c) Moral Objections, (d) Responsibility to Family, (e) Survival and Coping Beliefs, and (f) Child-Related Concerns.

Reasons for Living as "Why" in the Context of Suicide

Linehan et al. (1983) examined these reasons for living further using a community psychiatric inpatient sample. Respondents from this sample indicated whether they had thought about and attempted suicide in the past, and they were grouped into four categories: never had suicide ideation, history of brief suicide ideation, history of serious suicide ideation, and history of suicide attempt. Those who reported a history of serious suicide ideation or suicide attempts showed lower levels of survival and coping beliefs, responsibility to family, child-related concerns, and fear of suicide than those who had a brief or no history of suicide ideation, while individuals who reported a sense of responsibility to their family and children were found to have no history of suicide ideation at all. These patterns were identified in both the community and the inpatient samples, suggesting that when an individual possesses more reasons for living, they are at a lower risk of suicide.

These reasons for living factors were further examined using community and

psychiatric inpatient samples (Linehan et al., 1983). Respondents indicated whether they had thought about and attempted suicide in the past, and the researchers grouped their responses into four categories: never had suicide ideation, history of brief suicide ideation, history of serious suicide ideation, and history of suicide attempt. Participants who reported a history of serious suicide ideation or suicide attempts reported lower levels of survival and coping beliefs, responsibility to family, child-related concerns, and fear of suicide than those who had a brief or no history of suicide ideation. Those who reported a sense of responsibility to their family and children were found to have no history of suicide ideation. As above, these patterns were also identified in both the community and inpatient samples, further reinforcing the hypothesis that having more reasons for living was related to a lower risk of suicide.

In a later study, Osman et al. (1996) constructed a brief version of the reasons for living inventory for nonclinical and clinical adolescents. In their study, Osman et al. reduced the six factors of the original reasons for living to five by eliminating the child-related concern. Reflecting the findings of Linehan et al. (1983), all five reasons for living were selected significantly more often by those individuals who had no history of suicide and brief suicide ideation than by those with serious suicide ideation and/or a history of suicide attempts. Even after controlling for general psychological distress, survival and coping beliefs and responsibility to family factors were significantly negatively correlated with suicide risk. In a more recent study, Dogra, Basu, and Das (2011) found that four predictor variables—coping beliefs, future expectations, family relations, and presence of meaning in life (but not a search for meaning)—significantly and negatively predicted suicide ideation among young adults ages 19 to 21.

A different study using undergraduate male students showed that having reasons for living reduced feelings hopelessness, depression, and alcohol-related behaviors, but that higher levels of club memberships, family support, and the social support from friends did as well (Lamis & Lester, 2012). Although recent studies add more information about suicide and reasons for living, how individuals resurrect their reasons for living after a clinical intervention is not yet known, nor are the mechanisms by which reasons for living (goal-defined motivation) and finding meaning in life (experience-defined motivation) are associated with recovery from suicidal ideation.

In general, as Sansone and Smith (2000) suggested, goal- and experience-defined motivation may be differently related to the strength of the individual's experience-defined motivation. Traditionally, those reasons for living that are paramount for an individual can be identified based on how well they predict suicide ideation before or after an intervention, even in the presence of meaning in life. As shown in previous studies (Dogra, Basu, & Das, 2011; Linehan et al., 1983), one of the crucial goals for living systems is sustainability (Capra & Luisi, 2014). A living system sustaining itself, thus, seems intuitively related to its goal-defined motivation of reasons for living. Specifically, survival and coping beliefs appear to be among the core reasons for living among individuals who are at risk of or are recovering from suicide (Dogra, Basu, & Das, 2011; Linehan et al., 1983).

Meaning in Life as "How" in the Context of Suicide

One method for assessing experience-defined motivation is to undergo a subjective appraisal of meaning in life (Fitzpatrick, 2009; Heintzelman, King, & Anderson, 2014) in a way that is relevant to suicide. Drawing a meaning, in general,

involves relating the self as the agent of action to appraisal of one's life experience and redefining what one has gone through. Meaning in life, according to Frankl (1958, 1978a, 1978b), is a fundamental human motivation, and it has been theorized to relate to the tendency to take action (Tang, Kelley, Hicks, & Harmon-Jones, 2013). Frankl (1978) argued that finding meaning in life is a unique phenomenon for humans that has evolved over time within each individual and that persists even when the individual's personal meaning is against social norms, values, and goals. Additionally, Frankl conjectured that while meaning in life is ever changing a lifetime, it is never missing, which suggests that the concept has both static and dynamic dimensions.

On the other hand, others have proposed that, in some cases, meaning in life can be absent. Steger et al. (2006), for example, described two aspects of meaning in life: the presence and the search (for meaning in life). The latter implies the absence of meaning during the search. Subsequent empirical studies have found that meaning in life is positively associated with psychological well being but negatively associated with depression and suicide ideation (Heisel & Flett, 2014; Steger et al., 2006; Steger, Mann, Michels, & Cooper, 2009), whereas a lack of meaning in life has the opposite associations (Courtet, Jaussent, Lopez-Castroman, & Gorwood, 2014). These findings have been replicated in a military sample (Bryan et al., 2013). Another cross-sectional study using a different military sample found that having meaning in life contributed to less suicide ideation, which, in turn, was related to suicide attempts, regardless of Post-Traumatic Stress Disorder (PTSD) and depression symptoms (Sinclair, Bryan, & Bryan, 2016). Further, longitudinal studies conducted using college students as the sample group have indicated that possessing meaning in life is associated with a decreased risk of

suicide ideation and suicide attempts over time, whereas the search for meaning in life is associated with an increased risk (Kleiman & Beaver, 2013). Overall, these results suggest that meaning in life, as a cognitive state, is related to the motivation to live and/or sustain the system while still searching, and that this feedback loop accounts for an individual's emotional/cognitive state.

In contrast to findings like these regarding the presence of meaning in life, the results of studies examining the association between the search for meaning in life (implying a currently experienced absence of meaning) and suicide have been mixed. In a longitudinal study of nonclinical college students, the search for meaning in life was significantly associated with increased suicide ideation, although the magnitude of this effect was lost in a mediation analysis of the presence of having meaning in life (Kleiman & Beaver, 2013). Other studies using military samples have failed to show any association between the search for meaning in life and suicide ideation or suicide attempts when taking meaning in life into account, although correlation analyses have shown an inverse association between those variables (Bryan et al., 2013; Sinclair et al., 2016). In light of these patterns, the present study focuses only on the presence of meaning in life. Specifically, I will consider how reasons for living (goal-defined motivation) and meaning in life (experience-defined motivation) coordinate for Question I and, for Question II, how these two types of motivation and suicide ideation are coordinated for Question III and Question IV.

Possible Patterns Reasons for Living and Meaning in Life in the Extended SRM Model

For the present extension of the SRM model, I hypothesized that experience-defined motivation—i.e., meaning in life—participates in the emergence of the motivation to continue living (Baumeister & Masicampo, 2010)—that is, to self-sustain– in tandem with the goal-defined motivation of finding reasons for living. Thus, the relationship between each reason for living and different levels of meaning in life may emerge differently, and knowing this may to help predict suicide ideation during the recovery period. The assumption that augmented reasons for living would be helpful during the recovery process from a suicide mode also requires investigation. Whether or not a subfactor of reasons for living, such as survival and coping beliefs, is a significant predictor of changes in suicide ideation may be related to different patterns of coordination with the presence of meaning in life. A pattern for individuals whose cognitive states are resisting the levels of motivation, another pattern for individuals whose cognitive state is cooperating with levels of motivation, or a pattern for individuals whose cognitive state is switching between resistance and cooperation between levels of motivation may be expected to show a different relationship to suicide ideation during recovery from a suicide state. According to previous studies, survival coping beliefs are strong candidates for the primary reasons for living and may coordinate with having meaning in life in the dynamic levels of motivation that accompany the recovery process. However, there is no available information to help predict whether the same reasons for living subfactor will be primary when individuals go through a certain therapy.

Clinical Intervention in the Recovery Process From Suicide State

Clinical intervention is another crucial factor of the recovery process for individuals who are in recovery from a suicide state. A clinical intervention requires an infusion of new information into the motivation system, which may cause the system to learn a new pattern that revives and sustains the suicidal individual's self-regulatory process. More specifically, although individuals may be in a suicide mode for a certain period during their lifetimes, those who regulate their suicide states by undergoing therapy may experience a new coordination pattern between their goal-defined motivation and experience-defined motivation emerging via the interaction between a certain clinical intervention and an individuals' state, hence reviving/sustaining the self-regulation of their motivation systems.

Clinical Intervention as Game Changer in the Self-Regulation of Motivation

Participation in intervention may allow for the regulation of an individual's motivation to sustain living. Although it is possible that going through a certain intervention may help individuals to recover their motivation to live, attending an intervention that is tailored to the rejuvenation of a goal-defined motivation can change the motivation system, assuming that this manipulation of the augmenting conditions will change the self-regulation of the motivation system into a new goal-directed system anchored in reasons for living. For instance, in the present study, individuals were randomly assigned to one of the three commonly used crisis interventions that are delivered as routine care in the mental health triage system: treatment as usual (TAU), crisis response plan (CRP), or crisis response plan augmented with reasons for living task

conditions (Augment). The TAU condition consists of a risk assessment and crisis management resources provided by clinicians; individuals in the CRP condition not only receive a risk assessment and crisis management resources as individuals in the TAU condition do, but they also learn self-management skills as a separate component of this condition. Individuals in the Augment condition receive the same resources as those in the CRP condition, along with explicit discussions of reasons for living and writing down that list of reasons. Thus, the augment condition indicates that not only the quantity of information but also its compatibility with the individual's cognitive state are important determinants of how well the intervention succeeds in modifying the self-regulation of the motivation system properly to help it recover from a suicide mode, thus enabling the self-regulation of motivation system to sustain itself.

Dynamical Systems Theory

Based on the above discussion, it is apparent that psychological systems such as the motivation system change over time (i.e., they are dynamic), and the ways that they change can be influenced by their coming into "contact" with other psychological factors, systems, and new information, all of which represent interventions into the system. Fortunately, there is a branch of mathematics that models dynamic systems and their interactions: dynamical systems theory (DST). Therefore, I will be using the basic concepts of DST as a paradigm for interpretation the results of this study. What follows is a brief overview of those concepts. See Table 1 for an overview of the study.

Phase Changes According to Dynamical Systems Theory

According to Kelso (1995, 2012), the dynamic patterns of a given system follow a sequence from the absence of changing together to the presence of changing together. Dynamic patterns of change appear to be related as cyclical processes, and a change occurs in the transition between psychological orders. Kelso (1995, 2012) reported that Ewin Schrödinger, a physicist, emphasized this principle of the order-order transitions of living systems. Different states of living systems can be understood as phases, phase transitions, and formations of new patterns (Tognoli & Kelso, 2009). Theorists (Carver & Scheier, 1998; Kelso, 1995; Vallacher & Nowak, 1997) have understood such a basic pattern as either an attractor, indicating stability, or a repeller, indicating instability. One conventional way of explaining an attractor is to depict it as the basin of a valley in a surface. Figure 1 shows the topology of a dynamic system (such as the self-regulation of motivation system in this study). It can readily be seen that there are two states. On the left, an imaginary ball indicating the system's behavior (e.g., the individual's motivation to sustain) is in a local minimum, or basin. It is stable because it requires "energy" (e.g., an intervention) to move the ball up the sides and out of the basin. This is called an "attracted basin" state.

On the other hand, the ball (motivation) could be resting at a local maximum, as if on a peak that has downward slopes on either side. In this case, it is easy to disturb the ball's position because the slightest change will result in a decrease. This state is called a "repelled point" state because of its instability. Although Figure 1 depicts these states in two dimensions, it is easy to extend them to three dimensions, where the attracted basins and repelled points are local minima and maxima on an extended surface. If the ball

swirls around a three-dimensional attractor basin or a peak, this behavior will be identified as a limit cycle. Assuming that the contour of the system can be changed, the location of the attracted basins and repelled points will also change.

In dynamic systems language, the parameters that contribute to these changes are called "control parameters." For instance, the slope of the sides of an attracted basin (representing meaning in life, reasons for living, or suicide ideation in SRM system) can change depending on the type of intervention. Thus, in a suicide context, according to DST, we can consider the type of intervention as a control parameter that changes the individual's psychological topology. Now that the basic topological concepts from DST ("attracted basin" and "repelled point") have been explained, I will use them to discuss my research questions and return to the topic of the present study.

Clinical Intervention as a Control Parameter According to Dynamical Systems Theory

As the intervention condition moves from TAU to Augment (with each intervention serving as a control parameter, according to dynamic systems logic), an individual's likelihood of passive participation in their own intervention could decrease and their active participation increase, indicating a better probability of changing their psychological topology from a shallower attracted basin to a deeper attracted basin. According to DST logic, on the other hand, a changed psychological topology may occurs as a ball—that is, a behavior of the system—moves itself and/or is moved toward an attracted basin.

In the context of a TAU condition, interventions are designed so that participants receive risk assessment and crisis management resources from clinicians. The CRP

condition, meanwhile, requires more behavioral variability in the intervention design, including the introduction of explicit skills on how to manage the self, especially when the self is in a risky suicide state. In the Augment condition, individuals are provided a risk assessment, crisis management skills, and behavioral management skills as well as a session explicitly for speaking about reasons for living.

When considering the SRM model in the context of these three interventions, it appears possible that the Augment condition includes subcomponents that are relevant to multiple dimensions of self-regulation among those individuals who are assigned to this condition. Hence, I will consider each intervention condition separately for Questions II and IV. Since the Augment condition intervention directs individuals to regulate their reasons for living, I expected that this condition would show a different pattern of recovery, via the self-regulation of goal-defined motivation.

Resistive and/or Collaborative Relationship Between Levels of Motivation

During the recovery process before and after a suicide intervention, individuals may regain their basic ability to regulate their motivation. It is possible that once a certain subfactor of one's reason for living is sustained, this subfactor may either conflict or collaborate with meaning in life and/or with suicide ideation, and a new reason for living subfactor may emerge over time for individuals as their recovery process proceeds. Whether individuals evolve from having a certain reason for living to having a different reason for living, or whether they find a new reason for living and/or a previously important reason becomes less significant, is not yet known. More importantly, the patterns of relationship that form between levels of motivation may change how each

intervention influences the individual's psychological topology between levels of motivation. However, to ascertain whether this is the case, new information is needed about whether individuals set a different reason for living postintervention and/or whether a different reason for living emerges in addition to the previously significant goal or displaces that previous goal (i.e., whether past goals emerge in a resistant or a collaborative relationship with an emerging meaning in life). Hence, to understand which goal appears to be important in the process of recovery among the military personnel sample in this study, it was necessary to examine each type of reason for living individually to understand whether it formed resistive or collaborative relationships with the development of meaning in life.

If a different reason(s) for living emerges between the two levels of motivation as significant in relation to meaning in life (i.e., changing together), this information can be used to construct a new plan to determine whether providing an intervention that seeks a different reason(s) of living may accelerate or decelerate the recovery process and/or detour the pathway away from the suicide mode. Extending the SRM model, it appears that both the reasons why individuals live (i.e., their purpose goal) and how individuals draw meaning from their experience (i.e., their experience-defined motivation) are important sociocultural factors given the cognitive dimensions of the suicide mode (Rudd, 2001). The interactions between these goals may be associated differently with distinct levels and/or types of suicide ideation and/or behaviors. Depending upon the individuals' state in life (i.e., whether they are recovered or not) and/or their environmental circumstances, reasons for living and meaning in life can fluctuate over time. This is consistent with the FVT, and it can be related to the emergence of suicidal

thoughts and behaviors. Since both meaning in life and reasons for living are dynamic and interrelated constructs, cycles of suicidal ideation also fall within the domain of DST and can be profitably analyzed using the tools of that theory.

Life Process in an Open-System

From the conventional viewpoint, a life may appear to be a deterministic and closed system with definite transitional points from birth to death. When life manifests as an absence or reduced degree of dynamic states, and is thus in the process of reaching a death state, the death state gives feedback/feedforward to the living system by creating a psycho-biological equilibrium. The result is a quasi-closed system that with a reduced ability to exchange energy, matter, and information with the self and others and to complete tasks (Capra & Luisi, 2014). An individual's death state, seen from this perspective, is an organismic equilibrium that signals the end of the process initiated at birth.

However, when we consider the *process* between birth and death, life appears as an open-system in which both the life and the system are expected to be preserved in a dynamically stable state (i.e., negative change) or an unstable state (i.e., positive change), as shown in Figure 1. In an open system, however, information may be preserved, maintained, and generated in such a way that it results in suicide rather than the maintenance of life. Unstable ("repelled point") and stable ("attracted basin") states are important concepts associated with specific situations in the process of motivation regulation. Unstable/stable states do not stand on their own but persist in relation to one another (Capra, 1992; Capra & Luisi, 2014; Schrödinger, 1992).

Humans as One of the Living Systems and Mind/Consciousness as Processes of Cognition

From the broader perspective of a DST view of living systems, as Capra and Luisi (2014) indicated, the basic patterns of organization of living systems are interrelated. I conjecture that the two types of motivation in the SRM system (goal-defined and experience-defined) are interrelated as well. Consequently, they should exhibit self-organization as described by the DST. Self-organization (Butler, 2011; Carver & Scheier, 2002; Kelso, 1995; Thelen & Smith, 1994) is defined as occurring when patterns and order emerge from the interplay among parts of a complex system in the absence of explicit instructions from the organism itself, from the environment, or from both. The notion of self-organization also indicates that past states may partially influence the state of the system, and hence that history matters, although its interpretation changes over time in relation to the coordination occurring among different parts within the subsystems (Butler, 2011). When continual structural changes occur, web-like patterns of organization are preserved (Capra & Luisi, 2014). Mind and consciousness are not things but processes of cognition that form an ensemble of a state. Self-organization functions to generate dynamic patterns among systems (Baumeister et al., 2010).

Sustainability as the First Level of Ecological Motivation

Cognition in the dynamic systems view emerges as a result of continuous interactions between the system and its environment. Although the initial state of a cognitive system is selected at random, ordered patterns emerge due to self-organization; later, these create new structures and modes of behavior (Capra & Luisi, 2014). According to DST (Kugler & Turvey, 1987), the driving force of human motivation

should be ecological: first, sustain life, and then, flourish. Once the first level—sustaining life—is maintained, creativity and novelty may emerge (Capra & Luisi, 2014). According to the SRM model and the DST, any given state of the motivation system is an emergent property of the interplay between cognitive and emotional systems and, therefore, should be understood and addressed as the dynamic and cyclic interplay of the self and its spatiotemporal information. For those who are in a recovery state of suicide, this interplay is characterized by fluctuating meanings in life and reasons for living.

Working Model of Self-Regulation of Motivation System

The final model tested here, for questions III and IV, is illustrated in Figure 2. Two levels of motivation (experience-defined motivation and goal-defined motivation) are shown as Δ H (i.e., How) and as Δ W (i.e., What *Why), and the critical context specific variable is shown as Δ C (i.e., context-specific variable, suicide ideation as cognitive activities in the current study) within the net of Δ spatial/temporal information (i.e., Where/When). When the black circles rotate counterclockwise, it indicates a negative change value. If the black circles rotate clockwise, the rotation indicates a positive change value. The inner red or blue circle illustrates a possible transition phase (i.e., state) from an attractor to repeller, or vice versa, in relation to all or some of the variables in the model as spatial temporal information changes. The angular arrows rotate counterclockwise, illustrating negative changes in the variables. If the changes are positive, the angular arrows rotate clockwise. All of the angular arrows in Figure 2 rotate counterclockwise for illustration purposes.

In this model both theoretical and statistical representations of change in motivation are shown as HH for "Δ How," WW for "Δ What*Why," and CC for "Δ

Critical Variable," while changes in meaning in life are represented by Δ M, reasons for living by Δ R, and suicide ideation by Δ S. The dotted line illustrates the open system.

Four Research Questions

The current study will test for a possible relationship between goal-defined motivation (reasons for living) and experience-defined motivation (meaning in life). How that relationship emerges may be contingent upon the type of intervention that a suicidal individual receives. Therefore, I propose to answer four questions to test the SRM system in the context of suicide:

1. What is the overall relationship between levels of motivation in a suicide context across the three intervention conditions; that is, does a motivational state in the absence of new information to the system and/or a change in the meaning in life and/or partner effects entail actor strength and/or partner effects of changes in reasons for living over time?

To test these questions, a linear effects equation for individual *i*, time *j*, and variable *d* was used. The two simultaneous changes in meaning in life, ΔM, and each reasons for living subfactor, ΔR, is seen in Equation (1). DummyM indicates the variable for meaning in life over time and DummyR the variable for each subfactor, including reasons for living over time. The equation yields five individual models for meaning in life and each reasons for living subfactor. The two dummy variables for each change variable are DummyM and DummyR, indicating the duration of time from the baseline to a three-month follow up. The equation for the two simultaneous changes in meaning in life, ΔM, or reasons for living, ΔR, is

$$\Delta M_{(t+1)\,ijd} \text{ or } \Delta R_{(t+1)\,ijd} = \quad (1)$$
$$b_{0(\text{Intervention term})\,ijd} * Tx +$$
$$b_{1\,(\text{change in M when predictors equal zero})\,ij} * Dummy_M +$$
$$b_{2(\text{Mt: actor term of strength in meaning in life})\,ij} * Dummy_M +$$
$$b_{3(\text{Rt: partner term of change in either FS, FSD, MO, RF, or SCB})\,ij} * Dummy_M +$$

$b_{4(\text{change in R when predictors equal zero})\,ij} * \text{Dummy}_R +$
$b_{5(\text{Rt: actor term of strength in reasons for living of either FS, FSD, MO, RF, or SCB})\,ij} * \text{Dummy}_R +$
$b_{6(\text{Mt: partner term of change in meaning in life})\,ij} * \text{Dummy}_R +$
$b_{7(\text{number of past suicide attempts})} + b_{8(\text{suicide attempt})} + b_{9(\text{age})} + b_{10(\text{sex})} + b_{11(\text{demographic suicide ideation})} + e_{(M)\,ij} + e_{(M,\,R)\,ij} + e_{(R)\,ij} + e_{(S,\,M)\,ij} + e_{(S,\,R)\,ij} + e_{(S)\,ij}.$

2. How does each intervention condition show the differential relationship between the two levels of motivation for individuals over time? That is, does the dynamic pattern between levels of motivation shift over time for each intervention condition?

3. How does the addition of the cognitive activity of suicide ideation in the motivation system shift the three dynamic levels of motivation and suicide ideation over time across the three intervention conditions? In other words, does a motivational state, in the absence of system information and/or a direction of change in actor's strength and/or the partner effects of a variable, entail a motivational state in the absence of system information and/or direction of change in actor strength and/or the partner effects of the other variables over time?

Questions III and IV expanded the two simultaneous changes in the equation to changes in meaning in life, ΔM, or changes in reasons for living, ΔR, or suicide ideation, ΔS. The three dummy variables for each change variable—DummyM, DummyR, and DummyS—indicate change over time from the baseline to the 3-month follow up, as before. The equation for the three simultaneous changes in meaning in life, ΔM, or reasons for living, ΔR, or suicide ideation, ΔS, is

$$\Delta M_{(t+1)\,ijd} \text{ or } \Delta R_{(t+1)\,ijd} \text{ or } \Delta S_{(t+1)\,ijd} = \quad (2)$$
$b_{0(\text{Intervention term})\,ijd} * \text{Tx} +$
$b_{1\,(\text{change in M when predictors equal zero})\,ij} * \text{Dummy}_M +$
$b_{2(\text{Mt: actor term of strength in meaning in life})\,ij} * \text{Dummy}_M +$
$b_{3(\text{Rt: partner term of change in either FS, FSD, MO, RF, or SCB})\,ij} * \text{Dummy}_M +$
$b_{4(\text{St: partner term of change in suicide ideation})\,ij} * \text{Dummy}_M +$
$b_{5(\text{change in R when predictors equal zero})\,ij} * \text{Dummy}_R +$
$b_{6(\text{Rt: actor term of strength in reasons for living of either FS, FSD, MO, RF, or SCB})\,ij} * \text{Dummy}_R +$
$b_{7(\text{St: partner term of change in suicide ideation})\,ij} * \text{Dummy}_R +$
$b_{8\,(\text{Mt: partner term of change in meaning in life})\,ij} * \text{Dummy}_R +$
$b_{9\,(\text{change in S when predictors equal zero})\,ij} * \text{Dummy}_S +$
$b_{10(\text{St: actor term of strength in suicide ideation})\,ij} * \text{Dummy}_S +$
$b_{11(\text{Mt: partner term of change in meaning in life})\,ij} * \text{Dummy}_S +$
$b_{12\,(\text{Rt: partner term of change in either FS, FSD, MO, RF, or SCB})\,ij} * \text{DummyS} +$
$b13\,(\text{number of past suicide attempts}) + b_{14(\text{suicide attempt})} + b_{15\,(\text{age})} + b_{16\,(\text{sex})} +$

$b_{17\ (\text{demographic suicide ideation})} + e_{(M)\ ij} + e_{(M, R)\ ij} + e_{(R)\ ij} + e_{(S, M)\ ij} + e_{(S, R)\ ij} + e_{(S)\ ij}$.

4. How does each intervention condition manifest the differential relationship between the two levels of motivation and suicide ideation for individuals over time? That is, does a certain dynamic pattern in the relationship between levels of motivation and suicide ideation change differently over time for each intervention condition?

Table 1

A Summary of the Sequence of Procedures, Characteristics of Variables, Measured Variables, and Theoretical Representations

Sequence of Procedure	Characteristics of Variables	Measured Variables	Theoretical Representation
Demographics	Covariates for all questions	• Sex • Age • History of suicide attempt • Suicide ideation self-report • Times of suicide	Disturbances
Baseline	Actor 1 and partner 1 for all hypotheses	• Baseline meaning in life	Experience-defined motivation
	Actor 2 and partner 2 for all hypotheses	• Baseline of each reason for living (i.e., fear of suicide, fear of social disapproval, moral objections, responsibility to family, survival and coping beliefs	Goal-defined motivation
	Actor 3 and partner 3 for hypotheses 2 & 4	• Baseline suicide ideation	Cognitive activities
Intervention	Moderators for hypotheses 2 & 4	• Three types of clinical intervention (Augment or CRP or TAU)	Control parameters
1-Month Follow-up	Actor 1 and partner 1 for all hypotheses	• Meaning in life	Experience-defined motivation
	Actor 2 and partner 2 for all hypotheses	• Each type of reason for living (i.e., fear of suicide, fear of social disapproval, moral objections, responsibility to family, survival and coping beliefs)	Goal-defined motivation

Table 1 (Continued)

Sequence of Procedure	Characteristics of Variables	Measured Variables	Theoretical Representation
1-Month Follow-up	Actor 3 and partner 3 for hypotheses 2 & 4	• Suicide ideation	Cognitive activities
3-Month Follow-up	Actor 1 and partner 1 for all hypotheses	• Meaning in life	Experience-defined motivation
	Actor 2 and partner 2 for all hypotheses	• Each type of reason for living (i.e., fear of suicide, fear of social disapproval, moral objections, responsibility to family, survival and coping beliefs)	Goal-defined motivation
	Actor 3 and partner 3 for hypotheses 2 & 4	• Suicide ideation	Cognitive activities

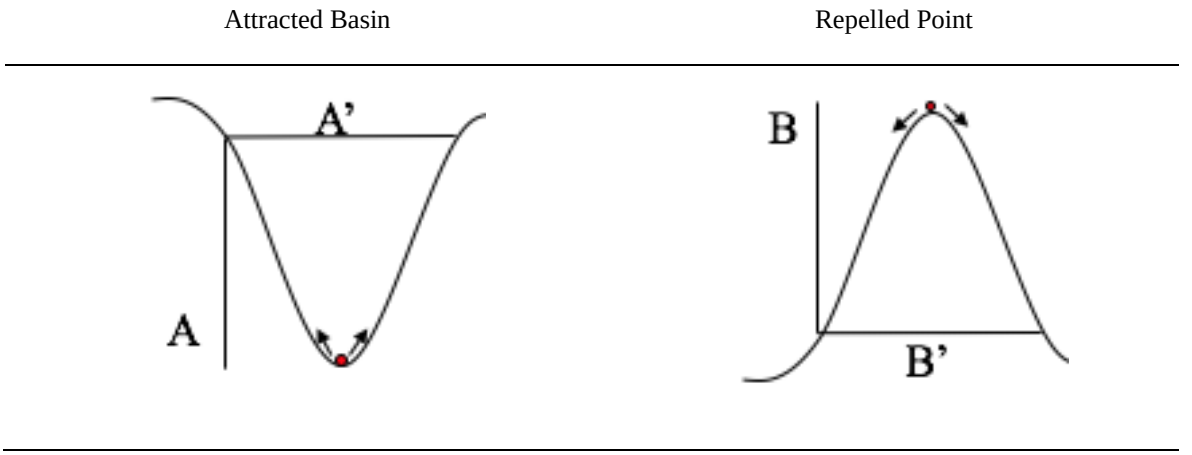


Figure 1. Important Topological Sites in Dynamical Systems.

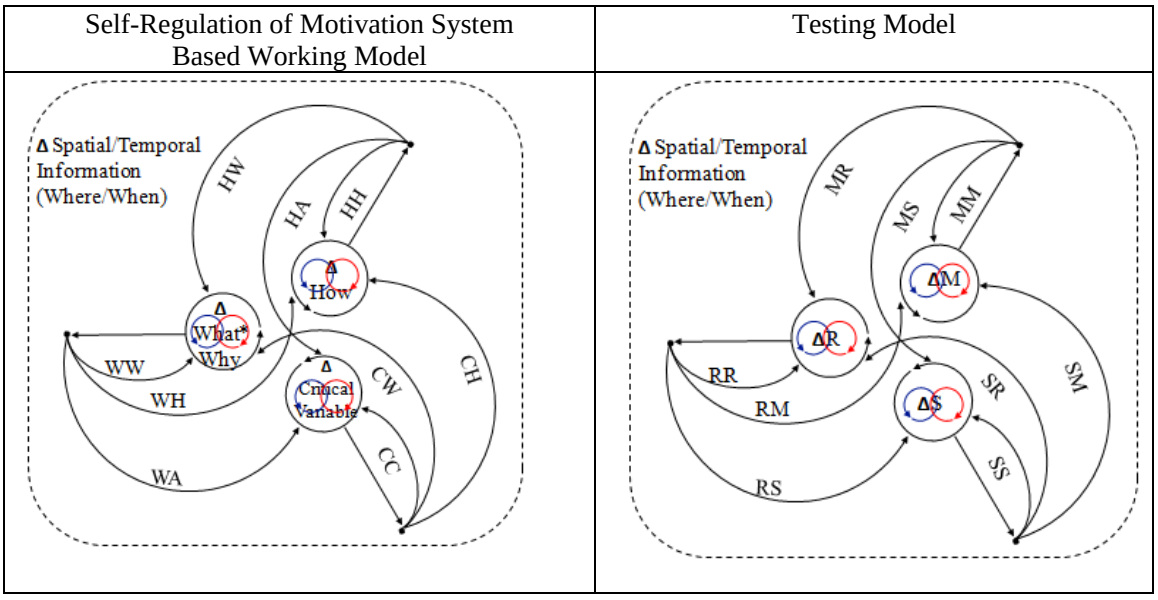


Figure 2. Self-Regulation of Motivation System Based Working and Testing Model.

CHAPTER 2

METHODS

Participants

For the current study—a secondary data analysis of a randomized clinical trial investigating the TAU, CRP, and Augment interventions—initial findings in relation to the risk factors of suicide were reported (Bryan et al., 2017). Suicidal participants from the hospital site's triage system were invited to participate and were randomly assigned to one of the three types of interventions that are commonly used in routine clinical practice. Participants in all three conditions were then observed for six months. The participants comprised 97 military personnel and veterans whose self-reported sex was mostly male (78%, n = 76); 22% of participants were female (n = 21). Participants' mean age was 25.8 (SD = 6.8) years. The self-reported racial identity (multiple ethnic identity reports were allowed) of participants was mostly Non-Hispanic Caucasian White (73%, n = 71), followed by African American (17%, n = 17), Native American (8%, n = 8), Asian (4%, n = 4), Pacific Islander (3%, n = 3), and Other (2%, n = 2).

Procedure

Military personnel were randomly assigned to one of the three intervention conditions described below. Before these individuals engaged in the intervention, they reported their presence of meaning in life, reasons for living, and suicide ideation, and

these initial data were used as baseline measures. Following the intervention, they reported their reasons for living, meaning in life, and suicide ideation at the 1-month, 3-month, and 6-month follow-ups. However, due to high subject attrition for the variables of interest of the current study at six months, I used those variables—reasons for living, meaning in life, and suicide ideation—only up to the three-month time point.

Interventions

Treatment As Usual (TAU)

The Treatment As Usual (TAU) intervention involves a clinician risk assessment and the provision of crisis management education. In addition, patients are provided referrals to intervention and community resources. Finally, patients are verbally asked to contract for safety (e.g., "If you went home today, would you be able to keep yourself safe?") before consideration for release.

The Crisis Response Plan (CRP)

The Crisis Response Plan (CRP) intervention adds to TAU by incorporating an additional section for self-management skills, such as the ability to identify warning signs and social support. A typical CRP provides the individual with instruction on when to use the plan: "I will use this crisis response plan when: wanting to go to sleep and not wake up; thinking about holding a gun to my head; and thinking 'I can't take it anymore.'" The second instruction reminds the individual of "things I will do on my own for 30 min: take slow, deep breaths, and think about my upcoming promotions." In the event that the first two steps are not effective, the CRP instructs individuals to contact other people, such as medical professionals. The CRP does not include a verbal contract for safety.

The Augmented Crisis Response Plan (AUGMENT)

The Augmented Crisis Response Plan (AUGMENT) is essentially the same as the CRP, but it includes an added a procedure in which participants are asked to verbally list as many reasons for living as possible. Hence, I will refer this condition as AUGMENT.

Measures

Meaning in Life

The Meaning in Life Questionnaire (MLQ; Steger et al., 2006) is a 10-item self-report measure that captures the degree presence of an individual's meaning in life using 5-items that affirm a meaning in life (e.g., "I have a good sense of what makes my life meaningful") and 5-items that concern the search for meaning in life, which is equivalent to an absence of meaning. For this study, I focused on the presence of meaning in life because past studies of suicide have shown that variable to be significant in relation to the presence of meaning in life but not to the search for meaning in life. Higher scores on the meaning in life scale indicated participants' perceptions of having a meaningful life. Available answers were arrayed on a 7-point Likert scale ranging from 1 ("absolutely untrue") to 7 ("absolutely true"). This scale showed high reliability for the presence of meaning in life (α = .86) and is related to depression and personality measures (Steger et al., 2006). The results showed high internal consistency at the baseline (α = .88) and at 1 month (α = .94) and 3 months (α = .93) postintervention.

Reasons for Living

The Brief Reasons for Living Inventory for Adolescents (BRFL-A) (Osman et al., 1996) measures five reasons for living factors: Fear of Suicide, Fear of Social

Disapproval, Moral Objections, Responsibility to Family, and Survival and Coping Beliefs. Fear of suicide is comprised of two items (e.g., "I am afraid of death"). An example of the three items addressing fear of social disapproval is, "I would not want people to think I do not have control over my life." "I consider it morally wrong" is one of the three items measuring the subject's moral objection subscale. The responsibility to family subscale includes three items, among which is, "I would hurt my family too much and I would not want them to suffer." An example item to measure survival and coping beliefs is, "I believe I can find other solutions to my problems."

The participants reported their reasons for living at the baseline, the 1-month, and the 3-month follow-up using a 6-point Likert scale ranging from 1 (*not at all important*) to 6 (*extremely important*). Initially used in a study by Osman et al. (1996), this scale is related to suicide probability (moral objections, responsibility to family, and survival and coping beliefs), suicide ideation (responsibility to family and survival and coping beliefs), and suicide likelihood (moral objections, responsibility to family, and survival and coping beliefs). In the current study, the results from using this scale showed reliability for each of the following subscales: fear of suicide (α = .70), fear of social disapproval (α = .74), moral objections (α = .52), responsibility to family (α = .68), and survival and coping beliefs (α = .76). Each subscale of the current study showed internal consistency both at the baseline and at the one-month and three-month follow-ups: fear of social disapproval (α = .89 at baseline, α = .85 at 1-month, and α = .88 at 3-months); moral objections (α = .90 at baseline, α = 84. at 1 month, and α = .77 at 3 months); survival and coping beliefs (α = .86 at baseline, α = .90 at 1 month, and α = .72 at 3 months); responsibility to family (α = .90 at baseline, α = .92 at 1 month and α = .85 at 3

months); and fear of suicide (α = .71 at baseline, α = .86 at 1 month, and α = .90 at 3 months).

Current Suicide Ideation

The Beck Scale for Suicide Ideation (BSSI) (Beck, Kovacs, & Weissman, 1979) is a 19-item measurement with three answer choices that assesses the subject's intensity of suicidal ideation during the past week. The 19-item assessment captures frequency, intensity, and duration of suicidal thoughts, plans, and preparations. Participants choose one of the three answer choices that best describes how they have been feeling the past week, including the present day. An example of a set of three answer choices that participants can choose from is "I have no desire to kill myself" (0), "I have a weak desire to kill myself" (1), or "I have a moderate to strong desire to kill myself" (2). The BSSI, which has good internal validity of .89, surveys past and future suicide attempts (Beck et al., 1979). In one study in which the BSSI was administered to military personnel at four discrete time points, internal consistencies ranged from .93 to .95 (Bryan, Clemans, Leeson, & Rudd, 2015).

In the current study, participants reported their level of suicide ideation at the demographic collection, preintervention, and two postintervention periods and at the one- and 3-month follow-ups. Internal consistency between the four time points showed high reliability (alpha = .75 at demographic collection, .84 at baseline, and .79 at the 1-month and .85 at 3-month follow-ups).

Disturbance Variables

The current study covered several variables—sex, age, BSSI scores, number of suicide attempts, and suicide attempts as disturbances in the system—from a dynamical systems perspective. Past studies (Bryan et al., 2015; Linehan et al., 1983) have shown that a history of suicide attempts results in individual variations in stress response and reasons for living. Therefore, I considered suicide attempts as disturbances in the system.

Analysis Plan

To examine stable and dynamic change processes across two or three variables (depending on the question) simultaneously while distinguishing between changes within each individual and changes between individuals within their group over time. To make this distinction, a multilevel actor-partner interdependence model (APIM) was used (Kenny et al., 2006). A single multilevel equation with a single outcome variable for change and specified dummy variable for each of the two/three simultaneous independent change variables was applied to each model. A change in the outcome variable indicates a difference between two consecutive time points—in other words, the baseline and one-month follow up scores predict the 1-month and 3-month follow up scores, respectively. The use of dummy variables allowed me to test two or three simultaneous change outcomes with two or three independent variables using a single equation. To generate two or three distinct one-level changes for when the independent variables were equal to zero, intercepts were suppressed for each variable (Bryan et al., 2017). Each model was created specifically to investigate change between individuals over time (level 1).

Applying a dynamical perspective (Butner & Story, 2010), Cook and Kenny (2005) provided a new approach for testing two simultaneous change variables as

dependent variables (DV). He created a DV that was based on the aforementioned change variables and independent variables (IV) to examine coupling terms using repeated measures of APIM. Applying Cook and Kenny's method, I created two new simultaneous change scores as DVs for Questions I and II, as shown in Table 2. Then, to answer Questions III and IV, three simultaneous DV and IV scores were created. The intercept was suppressed in the current analyses so that dummy codes could be generated for each process, and these were dropped when necessary (Cook & Kenny, 2005), such as when the dummy value is 0.

Using a series of interaction terms with the dummy codes, two parallel equations were created to address Questions I and II and three parallel equations were created for Questions III and IV. DummyM, DummyR, and DummyS indicate each meaning in life variable, each reasons for living subfactor, and suicide ideation. Adopted from Cook and Kenny (2005), DummyM equals 1 - DummyR, and vice versa for Questions I and II. Likewise, DummyM equals 1 - DummyR and DummyS, and vice versa for DummyR and DummyS for Questions III and IV. Hence, when DummyM equals zero, DummyR equals 1, as shown in Table 2. For each analysis procedure, the remaining terms generated the reverse equation; the result was a calculation of two or three simultaneous change scores (Butner & Story, 2010). For the purpose of estimating the error variance in DV across the variables, all of the variables of interest at the next time point were allowed to correlate, ensuring a theoretical match-up.

To test Question I—which looks at two simultaneous changes within and between levels of motivation—I used two variables of meaning in life and each reason for living for all conditions, predicting each change in reason for living after accounting for

covariates. For Question 2, I examined each intervention condition individually to explore how two levels of motivation changed the participants' psychological topology after accounting for covariates. To test Question III, I looked at three simultaneous changes among levels of motivation and suicide ideation for all conditions, predicting each subfactor change even after accounting for demographics and the subfactors of reasons for living. For Question IV, I tested each intervention condition to examine how two levels of motivation and suicide ideation were changed, thereby predicting the three simultaneous independent variables that may change a psychological topology state for each intervention condition while also accounting for covariates (i.e., disturbances).

Table 2

Example Variables Used in Two Simultaneous Change-as-Outcome
RM-APIM for Questions I and II and Model I
Using Over-Dummy Coding

Intervention Condition	Person *i*	Time *j*	Index	Dummy for Meaning in Life ($Dummy_M$)	Dummy for Each Reasons for Living ($Dummy_R$)	Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Subfactor	Actor Effect of Change in Meaning in Life	Partner Effect of Change in Reasons for Living of Fear of Suicide
TAU	3000	1 (baseline)	1 (meaning in life)	1.00	.00	.20	.43	-1.38
TAU	3000	1 (baseline)	2 (fear of suicide)	.00	1.00	.00	-1.61	.43
TAU	3000	2 (1-month)	1(meaning in life)	1.00	.00	1.00	.63	-1.38
TAU	3000	2 (1-month)	2 (fear of suicide)	.00	1.00	.00	-.61	.63
TAU	3000	3 (3-month)	1 (meaning in life)	1.00	.00	-999.00	1.63	-1.38
TAU	3000	3 (3-month)	2 (fear of suicide)	.00	1.00	-999.00	-1.27	1.63
Augment	3001	1	1	1.00	.00	.00	-1.11	1.63
Augment	3001	1	2	.00	1.00	.00	1.75	-1.11
Augment	3001	2	1	1.00	.00	2.80	-1.11	1.63
Augment	3001	2	2	.00	1.00	.00	-1.92	-1.11
Augment	3001	3	1	1.00	.00	-999.00	1.69	1.63
Augment	3001	3	2	.00	1.00	-999.00	-1.92	1.69

Table 2 (Continued)

Intervention Condition	Person *i*	Time *j*	Index	Dummy for Meaning in Life ($Dummy_M$)	Dummy for Each Reasons for Living ($Dummy_R$)	Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Subfactor	Actor Effect of Change in Meaning in Life	Partner Effect of Change in Reasons for Living of Fear of Suicide
CRP	3004	1	1	1.00	.00	.80	-1.57	-1.38
CRP	3004	1	2	.00	1.00	.00	.06	-1.57
CRP	3004	2	1	1.00	.00	-.60	-.77	-1.38
CRP	3004	2	2	.00	1.00	.00	.73	-.77
CRP	3004	3	1	1.00	.00	-999.00	-1.37	-1.38
CRP	3004	3	2	.00	1.00	-999.00	-2.27	-1.37

Note. -999 indicates missing values, 0 values in two simultaneous changes in meaning in life and each reasons for living subfactor indicate no change in fear of suicide for persons 3000, 3001, and 3004. Three simultaneous change models entail 9 rows for individuals who completed three time points and one more dummy variable for suicide ideation.

CHAPTER 3

RESULTS AND DISCUSSION

Results

As expected for levels of motivation (i.e., each type of reasons for living) and suicide ideation, the five disturbance variables (sex, age, demographic BSSI scores, number of suicide attempts, and suicide attempts) were correlated with one another from -.46 to .74 (see Table 3). Overall, all of the variables that were tested in the current study showed a negative slope, indicating negative change, except for one of the subfactors of reasons for living: responsibility to family (as shown in Figure 3).

An identical analysis was repeated for Question I for the purpose of understanding the intervention condition individually in the five models (Table 4). I tested the two levels of change when variables equal to zero for actor strength and partner effect on levels of motivation on two simultaneous changes, as suggested in hypothesis II (Tables 5-7). For Question III, change when variables are equal to zero and/or actor strength and/or partner effects of changes in suicide ideation was added in the models of Question I. The result was three simultaneous changes for meaning in life, each facet of reasons for living, and suicide ideation (Table 8). The last question emphasized the change effects of each intervention condition individually when variables were equal to zero and/or there were simultaneous actor strength and/or partner effects resulting in change in the three

variables of meaning in life, reason for living, and suicide ideation (Tables 9-11). The results showed the processes by which levels of motivation changed in the context of suicide across the four time points.

The two RM APIM models for Question I predicted two simultaneous changes between levels of motivation of meaning in life and each reason for living subfactor, as displayed in Table 4. Table 4 shows the change patterns that resulted from answering Question I. When variables were equal to zero, positive changes in meaning in life (Model I: $t(158.34) = 2.91$, $p < .01$, 95% CI [2.65, 13.88], Model II: $t(133.81) = 3.60$, $p < .01$, 95% CI [6.20, 21.32], Model III: $t(136.95) = 3.03$, $p < .01$, 95% CI [3.52, 16.75], Model IV: $t(152.63) = 2.66$, $p = .01$, 95% CI [2.36, 16.02], Model V: $t(139.79) = 3.57$, $p < .01$, 95% CI [5.92, 20.60]) and two subfactors of reasons for living—that is, fear of social disapproval ($t(96.72) = 2.34$, $p < .05$, 95% CI [1.19, 14.48]) and changes in survival and coping beliefs ($t(87.07) = 3.12$, $p < .01$, 95% CI [3.45, 15.54]) were evident. This indicates that the system is liable to be changed even when there is no new information in the motivation system. Meaning in life (Model I: $t(97.49) = -5.15$, $p < .01$, 95% CI [-0.69, -0.31], Model II: $t(99.37) = -5.17$, $p < .01$, 95% CI [-0.71, -0.32], Model III: $t(95.61) = -4.57$, $p < .01$, 95% CI [-0.70, -0.28], Model IV: $t(97.46) = -4.96$, $p < .01$, 95% CI [-0.74, -0.32], and Model V: $t(94.79) = -3.51$, $p < .01$, 95% CI [-0.70, -0.19]) and the four subfactors of reasons for living (except responsibility to family) showed negative change (FS: $t(88.81) = -4.38$, $p < .01$, 95% CI [-0.58, -0.22], FSD: $t(92.36) = -6.06$, $p < .01$, 95% CI [-0.82, -0.42], MO: $t(88.23) = -4.06$, $p < .01$, 95% CI [-0.52, -0.18], and SCB: $t(87.06) = -5.50$, $p < .01$, 95% CI [-1.04, -0.49]).

The answer to Question I is that there was a consistent tendency toward stability

in the meaning in life variable and in each of the following reasons for living subfactors (but not responsibility to family): fear of suicide, fear of social disapproval, moral objections, or survival and coping beliefs.

For Question II, in the Augment condition, as shown in Table 5, model II of change in meaning in life had a significant and positive value, and none of the other reasons for living was significant when its predictors were zero ($t(30.25) = 4.13$, $p < .01$, 95% CI [12.55, 37.07]). All the strength of meaning in life subfactors had a negative value across the five models, indicating negative change—that is, stability in meaning in life (Model I: $t(23.34) = -2.78$, $p = .01$, 95% CI [-0.77, -0.11]), Model II: $t(23.70) = -4.38$, $p < .01$, 95% CI [-0.91, -0.33]), Model III: $t(21.87) = -2.72$, $p = .01$, 95% CI [-0.79, -0.11]), Model IV: $t(23.13) = -3.22$, $p < .01$, 95% CI [-0.95, -0.21]), and Model V: $t(23.76) = -2.82$, $p = .01$, 95% CI [-1.10, -0.17]). Only two subfactors of reasons for living—fear of suicide ($t(18.53) = -2.42$, $p < .05$, 95% CI [-1.12, -0.08]) and fear of social disapproval ($t(20.37) = -2.55$, $p < .05$, 95% CI [-0.86, -0.09])—were significant and negative in their values, indicating stability over time. There were two coupling effects across the five models: when fear of suicide was stabilized, meaning in life was positive ($t(18.54) = 2.21$, $p < .05$, 95% CI [0.01, 0.33]), indicating (a) destabilization and, hence, (b) a collaborative relationship between reasons for living and meaning in life useful for predicting fear of suicide. Applying Model II revealed another coupling effect: When meaning in life was stabilized, fear of social disapproval showed significant and negative value, suggesting a resistant relationship between meaning in life and fear of social disapproval ($t(22.74) = -2.15$, $p < .05$, 95% CI [-1.23, -0.02]).

In the CRP condition, as seen in Table 6, none of the models showed changes

when the system was void of information for each of the two variables. Two models—model I ($t(30.72) = -2.24$, $p < .05$, 95% CI [-0.77, -0.04]) and II ($t(32.28) = -2.35$, $p < .05$, 95% CI [-0.90, -0.06])—showed significant and negative strength of meaning in life. All of the reasons for living except responsibility to family showed significant and negative values, indicating a tendency toward stability over time (FS: $t(25.11) = -2.93$, $p = .01$, 95% CI [-0.83, -0.14], FSD: $t(26.17) = -2.64$, $p = .01$, 95% CI [-0.94, -0.12]), MO: $t(24.75) = -3.34$, $p < .01$, 95% CI [-0.98, -0.23]), and SCB: $t(24.21) = -2.71$, $p = .01$, 95% CI [-1.06, -0.14]). No coupling effect was found.

In the TAU condition, as shown in Table 7, all of the models except Model IV showed significant and positive values for meaning in life, indicating that meaning in life was liable to be changed when the system was absent information (Model I: $t(59.08) = 3.37$, $p = .01$, 95% CI [6.03, 23.73], Model II: $t(43.60) = 2.85$, $p = .01$, 95% CI [6.14, 35.65], Model III: $t(45.80) = 2.16$, $p < .05$, 95% CI [0.86, 25.10], Model V: $t(47.55) = 3.75$, $p < .01$, 95% CI [11.12, 36.89]). When it comes to types of reasons for living, fear of social disapproval ($t(34.63) = 2.35$, $p < .05$, 95% CI [2.13, 29.54]) and survival and coping beliefs ($t(30.05) = 3.69$, $p < .01$, 95% CI [8.97, 31.14]) also showed significant and positive change in the absence of information from the variables, indicating that the subject's system of reasons for living may be changed. The strength of meaning in life (Model I: $t(36.10) = -4.41$, $p = .01$, 95% CI [-1.22, -0.45], Model II: $t(39.03) = -3.96$, $p < .01$, 95% CI [-1.14, -0.37], Model III: $t(35.89) = -3.49$, $p < .01$, 95% CI [-1.20, -0.32], Model IV: $t(38.82) = -3.89$, $p < .01$, 95% CI [-1.20, -0.38], and Model V: $t(36.45) = -2.63$, $p = .01$, 95% CI [-1.00, -0.13]) and all of the reasons for living except responsibility to family (FS: $t(31.31) = -2.92$, $p = .01$, 95% CI [-0.64, -0.11], FSD: $t(34.85) = -4.37$, $p <$

.01, 95% CI [-1.24, -0.45], MO: $t(30.19) = -2.13$, $p < .05$, 95% CI [-0.59, -0.01], and SCB: $t(30.11) = -5.66$, $p < .01$, 95% CI [-1.75, -0.82]) showed significant and negative values, indicating stability in each of those reasons for living under the TAU condition.

Answering Question II, none of the models showed significant change in meaning in life in the CRP condition, one showed positive change in meaning in life (i.e., Model II) in the Augment condition, and four models (i.e., Model I, II, III, and IV) showed positive change in meaning in life in the TAU condition when the system was void of information that would predict this change. None of reasons for living variables showed significant changes in either the Augment or CRP conditions, and only two fear of social disapproval and survival and coping beliefs models showed positive and significant change when there was no information in the system for predicting each of those reasons for living in the TAU condition. Therefore, in the TAU condition, some reasons for living were likely to be changed, even in the absence of information. When it comes to stability of meaning in life, for instance, all of the models in both the Augment and the TAU conditions appeared to be stabilized, whereas only two models for the CRP condition showed stability in the prediction of change in meaning in life. In the case of the stability of each of the reasons for living subfactors, four subfactors (fear of suicide, fear of social disapproval, moral objections, and survival and coping beliefs) were stabilized in both the CRP and the TAU conditions, while two models of fear of suicide and fear of social disapproval showed stability in the Augment condition. Two discrete coupling effects appeared in the Augment condition, in fact: Meaning in life (a) showed positive change in predicting fear of suicide, indicating (b) a collaborative relationship between fear of suicide and meaning in life. Another coupling effect useful for predicting change in

meaning in life resulted from fear of social disapproval since the relationship between meaning in life and fear of social disapproval appeared to be resistive. One coupling effect appeared in the CRP condition between moral objections and meaning in life that may be useful for predicting collaborative changes in moral objections and meaning in life. In the TAU condition, however, none of the coupling effects appeared between levels of motivation. Finally, as a coupling effect, suicide ideation had a significant and negative value in predicting change in meaning in life.

For Question III, as shown in Table 8, I added a suicide ideation variable into the two levels of motivation in order to understand the overall pattern of the three simultaneous changes in meaning in life, each of the reasons for living, and suicide ideation. Unlike the results for two simultaneous changes with five significant and positive values in the change in meaning in life in the absence of information in the system, the same results were repeated across the four models for meaning in life (Model I: $t(144.59) = 2.23$, $p < .05$, 95% CI [0.79, 13.09], Model II: $t(146.85) = 2.92$, $p < .01$, 95% CI [3.51, 18.20], Model III: $t(146.40) = 2.67$, $p < .01$, 95% CI [2.33, 15.72], Model IV: $t(96.82) = -4.99$, $p < .01$, 95% CI [-0.79, -0.34], Model V: $t(138.74) = 2.67$, $p = .01$, 95% CI [2.67, 17.99]). Further, unlike the two simultaneous changes across the three conditions with significant and positive changes in fear of social disapproval and survival and coping beliefs when the system was void of information, only survival and coping beliefs had a significant and positive value ($t(104.85) = 2.20$, $p < .05$, 95% CI [0.58, 11.38]). All of the changes of suicide ideation were significant and positive, indicating that the system was liable to be changed when there was no information available that would effect motivation.

Across the five models, strength of meaning in life and the four subfactors of reasons for living showed significant and negative values, as seen in answer to Question II, indicating a negative change (Model I: $t(95.26) = -5.03$, $p < .01$, 95% CI [-0.75, -0.32], Model II: $t(95.27) = -4.85$, $p < .01$, 95% CI [-0.74, -0.31], Model III: $t(95.07) = -4.53$, $p < .01$, 95% CI [-0.75, -0.29], Model IV $t(96.82) = -4.99$, $p < .01$, 95% CI [-0.79, -0.34], and Model V: $t(104.85) = 2.20$, $p < .05$, 95% CI [0.58, 11.38]). All of the suicide ideation variables were significant and negative in their values across the five models, as shown in Table 8, indicating that suicide ideation showed negative changes, which is suggestive of the stability of suicide ideation (Model I: $t(147.78) = 2.50$, $p = .01$, 95% CI [1.76, 15.10], Model II: $t(157.47) = 2.49$, $p = .01$, 95% CI [2.01, 17.62], Model III: $t(155.05) = 2.37$, $p < .05$, 95% CI [1.42, 15.56], Model IV: $t(138.83) = 3.54$, $p < .01$, 95% CI [6.54, 23.13], Model V: $t(141.49) = 2.65$, $p < .01$, 95% CI [2.82, 19.38]).

Two discrete coupling effects appeared in the three simultaneous change models: The two subfactors of fear of suicide and responsibility to family were significant and negative in their values, indicating that when suicide ideation stabilized, fear of suicide ($t(104.38) = -2.04$, $p < .05$, 95% CI [-1.03, -0.01]) or responsibility to family ($t(103.35) = -2.65$, $p < .01$, 95% CI [-1.06, -0.15]) also stabilized, suggesting a resistive relationship between reasons for living and suicide ideation.

To tease apart the significant effects in the results for Question III according to each intervention, for Question, I examined each condition individually. In the Augment condition in Table 9, when there was no information in the motivation system, neither change in meaning in life nor change in suicide ideation were significant, and only three discrete changes of reasons for living showed significant and negative values, indicating

that the motivation system changed negatively for reasons for living, making the system directed by fear of suicide ($t(24.55) = -2.78$, $p < .01$, 95% CI [-18.47, -2.75]), moral objections ($t(22.34) = -2.31$, $p < .05$, 95% CI [-17.77, -0.95]), or responsibility to family ($t(22.26) = -2.51$, $p < .05$, 95% CI [-16.13, -1.54]) in the absence of new information.

Across all five models, meaning in life and suicide ideation had significant and negative values, which is an identical pattern to the results of Question III, indicating the system's stability. Only one coupling effect was significant and negative in its value: When suicide ideation was stabilized, responsibility to family was also stabilized in the system, showing a resistive relationship between suicide ideation and responsibility to family for predicting change in suicide ideation in the Augment condition.

In the CRP condition, as shown in Table 10, none of the changes were significant when the system was void of information. All meaning in life, except in the cases of model V (Model I: $t(29.21) = -2.58$, $p < .05$, 95% CI [-0.83, -0.10], Model II: $t(30.96) = -2.63$, $p = .01$, 95% CI [-0.93, -0.12], Model III: $t(29.13) = -2.33$, $p < .01$, 95% CI [-0.89, -0.06], Model IV: $t(30.19) = -2.18$, $p < .05$, 95% CI [-0.81, -0.03]), all the reasons for living except fear of suicide and responsibility to family (FSD: $t(23.74) = -2.28$, $p < .05$, 95% CI [-0.84, -0.04], MO: $t(24.35) = -3.15$, $p < .01$, 95% CI [-0.98, -0.20], SCB: $t(23.47) = -2.61$, $p < .05$, 95% CI [-1.05, -0.12]), and all of the suicide ideation variables (Model I: $t(30.93) = -4.94$, $p < .01$, 95% CI [-1.41, -0.58], Model II: $t(32.23) = -4.81$, $p < .01$, 95% CI [-1.40, -0.57], Model III: $t(31.26) = -5.79$, $p < .01$, 95% CI [-1.49, -0.71], Model IV: $t(30.69) = -5.49$, $p < .01$, 95% CI [-1.46, -0.67], Model V: $t(31.19) = -5.79$, $p < .01$, 95% CI [-1.50, -0.72]) were significant and negative in their values, indicating their stability.

Three individual coupling effects appeared across the three distinct models: When meaning in life stabilized, suicide ideation also stabilized, indicating resistive relationships between the two variables in the prediction of change in meaning in life (Model II: $t(28.56) = -2.24$, $p < .05$, 95% CI [-0.73,-0.03], Model III: $t(28.57) = -2.02$, $p = .05$, 95% CI [-0.66, 0.01], and Model V: $t(28.79) = -2.11$, $p < .05$, 95% CI [-0.66, -0.01]).

In the TAU condition, as shown in Table 11, three discrete models of meaning in life (Model I: $t(57.07) = 2.15$, $p < .05$, 95% CI [0.73, 20.53], Model II: $t(53.40) = 2.04$, $p = .05$, 95% CI [0.25, 26.13], Model V: $t(51.65) = 2.29$, $p < .05$, 95% CI [1.88, 28.07]), fear of social disapproval ($t(45.90) = 2.34$, $p < .05$, 95% CI [1.62, 21.30]), and survival and coping beliefs ($t(38.63) = 3.42$, $p < .01$, 95% CI [5.97, 23.31]), and two models of suicide ideation (Model I: $t(57.14) = 2.46$, $p < .05$, 95% CI [2.58, 25.18], Model IV: $t(52.84) = 2.59$, $p = .01$, 95% CI [4.202, 32.90]) showed significant and positive changes in the absence of information in the system, indicating that the motivation system was liable to be changed.

Meaning in life (Model I: $t(37.22) = -4.08$, $p < .01$, 95% CI [-1.22, -0.41], Model II: $t(37.06) = -3.52$, $p < .01$, 95% CI [-1.16, -0.31] , Model III: $t(36.61) = -3.34$, $p < .01$, 95% CI [-1.22, -0.30] , Model IV: $t(38.12) = -3.92$, $p < .01$, 95% CI [-1.21, -0.38], Model V: $t(37.51) = -2.63$, $p < .01$, 95% CI [-1.03, -0.13]) and suicide ideation (Model I: $t(39.40) = -5.88$, $p < .01$, 95% CI [-1.20, -0.59], Model II: $t(39.54) = -6.35$, $p < .01$, 95% CI [-1.24, -0.64], Model III: $t(39.12) = -5.96$, $p < .01$, 95% CI [-1.20, -0.59] , Model IV: $t(38.85) = -5.91$, $p < .01$, 95% CI [-1.22, -0.30], Model V: $t(37.76) = -5.48$, $p < .01$, 95% CI [-1.23, -0.57]) showed significant and negative values across the five models,

indicating their tendency toward stability.

In addition, one coupling term appeared in the prediction of meaning in life: When meaning in life was stabilized, fear of suicide destabilized, indicating a resistive relationship between the two variables ($t(39.78) = 2.13$, $p < .05$, 95% CI [0.04, 1.46]). Two coupling terms appeared in the prediction of each of the reasons for living subfactors. When fear of social disapproval ($t(38.83) = -3.13$, $p < .01$, 95% CI [-0.44, -0.09]) or survival and coping beliefs ($t(37.76) = -5.48$, $p < .01$, 95% CI [-1.23, -0.57]) stabilized, suicide ideation also stabilized, indicating a resistive relationship between the two variables.

Taking into account the answer to Question IV, one notable finding for the Augment condition is that when the system was both goal-directed and void of information, there were negative changes in reasons for living shown in three of the models, while none of these changes were significant in the CRP condition, and only positive changes emerged across the levels of motivation and suicide ideation in the TAU condition. Another notable finding for the Augment condition is that the coupling relationship between suicide ideation and responsibility to family emerged as resistive. Whereas resistive relationships between meaning in life and suicide ideation were apparent across the three discrete models in the CRP condition, a resistive relationship between fear of social disapproval or survival and coping beliefs and suicide ideation appeared in the TAU condition.

To sum up, the results showed the dynamic processes that the motivation system undergoes in recovery from a suicidal state among a participant sample of U.S. military personnel. The results indicated that there were distinctions related to the behaviors of the

motivation system in each intervention condition. While reasons for living, fear of suicide, moral objections, and responsibility to family were evident only the Augment condition in the absence of information in the system, there was a significant resistive coupling relationship between suicide ideation and responsibility to family in the prediction of suicide ideation in that condition. The CRP condition, however, showed a resistive relationship between meaning in life and suicide ideation, and the TAU condition showed a resistive relationship between fear of social disapproval or survival and coping beliefs and suicide ideation. Although resistive relationships appeared to be prevalent across the different intervention conditions, the relationship between suicide ideation and reasons for living in the Augment condition appeared to be the least resistive to the recovery process taking place within the motivation system.

Discussion

The results of the current study indicated that each intervention provides a distinct recovery process of self-regulation of motivation for a sample of U.S. military personnel who used to be in a suicidal state. These findings suggest that each intervention may involve a distinctive recovery process within the motivation system for U.S. military personnel that may lead to either a full recovery or a full relapse of their motivation system over time. The Augment condition alone provided unique information. That is, under the Augment condition, the subfactors of reasons for living (i.e., fear of suicide, moral objections, responsibility to family, and survival and coping beliefs) showed negative changes in the goal-directed motivation system in the absence of information. These negative changes suggest that the motivation system is oriented towards goals based on reasons to live, even in the absence of information in the motivation system.

This mechanism of the Augment condition aligns with the self-regulation of motivation model since the self-regulation of motivation system is goal-directed (Sansone & Thoman, 2005), even in the absence of information in the system, as well. Since the Augment condition is an intervention that provides U.S. military personnel with the opportunity to verbalize the reasons why they choose to live during their intervention sessions, the very act of articulating these motivations might give rise to a new goal-directed motivation system. The negative changes that were found in the reasons for living subfactors of fear of suicide, moral objections, and responsibility to family may be aligned with the notion of automatic reinforcement (Nock & Prinstein, 2005), which relates to behaviors of the motivation system that serve the goal, even in the presence of suicide ideation.

Intriguingly, individuals who participated in the Augment intervention appeared to show that their strength of stability was modulated via meaning in life or suicide ideation but not by finding reasons for living, which aligns with the self-regulation of motivation model. Although the motivation system is initiated in order to reach a certain goal or reason why, in the process of its regulation, the emergent property of experience-defined motivation, such as meaning in life, and actual activities, such as suicide ideation, are proximally related to sustaining one's motivation system. Uniquely, only in the Augment condition did individuals show a resistive relationship between responsibility to family and suicide ideation, implying that it is easier for the self-regulation of motivation system to function in the Augment intervention relative to other interventions. For those who participated in the Augment intervention, goal-defined motivations that are related to tangible notions such as family instead of abstract notions such as suicide, social

disapproval, moral objections, and survival and coping beliefs appear to help create stability in the motivation to live, even in the presence of highly stable suicide ideation.

In the CRP condition, the U.S. military personnel who participated in this study tended to show stability in their reasons for living among the three variables across the five models, except as related to responsibility to family. Although the interaction between goal-defined motivation, experience-defined motivation, and actual cognitive activity was established in the absence of the automatic activation of goal-directed behavior within the SRM system, in other words, the motivation systems is liable to lose its dynamic strength in the absence of goal-redirection. In the Augment condition, meaning in life stabilized, but in the CRP condition, participants tended to show a change in negative value condition, suggesting that a trade-off effect may be likely to emerge over time that sustains the motivation system, assuming that the relationship between experience-defined motivation and the cognitive activity of suicide ideation continues. The resistive relationship between meaning in life and suicide ideation seems to suggest that the cognitive appraisal of experience and cognitive activity of suicide ideation change in tandem, setting the motivation system in motion and predicting a later change in meaning in life. This result further implies that when the individual's cognitive appraisal of their experience-defined motivation is stabilizing, the prediction of meaning in life may be in more proximal association with an individual's daily life, creating a resistant relationship between suicide ideation and meaning in life. Among the meaning in life variables, this dynamic between reasons for living and suicide ideation appears to be the most resistant, not only creating stability in the CRP condition but also changing with the gradual revelation of meaning in life.

In the TAU condition, in line with the CRP condition, positive changes were established for the three variables that would provide information when the three variables were set to zero. Although every variable became stable, except under the two models, the collaborative relationship between meaning in life and fear of suicide in predicting meaning in life appears to show that when individuals establish life meaning, their suicide ideation destabilized, indicating that the cognitive appraisal of experience-defined motivation occurs in tandem with the goal-defined motivation of fear of suicide. In addition, when each subfactor of the fear of social disapproval and survival and coping beliefs variables was stabilized, suicide ideation also stabilized in the prediction of each goal-defined motivation, suggesting that there is a resistive relationship between goal-defined motivation and the actual cognitive activity of suicide ideation in the TAU condition. In the Augment condition, a trade-off effect for sustaining the motivation system in relation to suicide ideation may be most likely to emerge over time, assuming that this TAU phase relationship between goal-defined motivation and cognitive activity of suicide ideation continues, even in the presence of changes across the three variables.

When considering the results across the three individual conditions together, a different regulatory strategy seems to emerge for each condition. In spite of the stability of the three variables across the five models, in the Augment condition, changes in goal-defined motivation were negative; hence, the motivation system was sustained, even in an information-void state. One type of goal defined motivation in particular—responsibility to family—appeared to show negative changes when suicide ideation was becoming stabile. All these characteristics suggest that the Augment condition may be particularly important to establishing the goal-directed self-regulation of the motivation system. On

the other hand, in the CRP condition, the actual cognitive activity of suicide ideation is more dynamic, even showing stability when meaning in life was stabilized. In addition, in the TAU condition, suicide ideation was most dynamic among the three variables, and it tends to stabilize when goal-defined motivation is stabilized. Thus, aside from forming its own stability, goal defined motivation variables combat suicide ideation in the Augment condition, while suicide ideation resists meaning in life in the CRP condition and goal-defined motivation in the TAU condition.

Overall, the results of the current study suggest that each intervention may influence the self-regulation of motivation system differently in the process of recovery from a suicidal state. Although the Augment condition appeared to be goal-directed when it came to forming a motivation system and reasons for living, the motivation system is far from fully developed in this stage of recovery due to the absence of a resistive or collaborative relationship between the levels of motivation. Paradoxically, however, the cognitive activity of suicide ideation sustains the motivation system by changing itself along with either type of motivation (Sansone, & Thoman, 2006), suggesting that the self-regulation of motivation system may use this internal conflict to sustain itself (Shah, Friedman, Kruglanski, Devine, & Patricia, 2002). Instead, tight relationships between active suicide ideation and meaning in life in the CRP condition and reasons for living in the TAU condition appear to show that suicide ideation is resistant to recovery from the suicide mode.

Limitations

Conclusions based on the current results should be drawn cautiously given several limitations. First, the current study relies on a self-report measure specifically focused on

motivation that bridges the aspects of cognition and emotion in the absence of six-month follow up scores due to subject attrition. Hence, it is not clear that the current results reflect the whole process of recovery. For instance, it unknown whether individuals were cleared from their Augment condition interventions with their stability of reasons for living strengthened. Using data only up to three-month follow up limits the ability to draw a final conclusion on the recovery process of suicide.

Second, to understand the motivation system, information about the state of the self needs to be taken into account. For instance, the absence of acute and chronic suicide risk factors may tell a different story about the intervention effects, as indicated by the FVT (Rudd, 2006). Third, set point analyses need to follow in order to determine the set points for each variable across the five models. Fourth, whether and/or how the motivation system is related to other systems—such as emotions, behaviors, biology, and triggers—in the context of suicide during the recovery process is not yet known. Fifth, the current study did not take measurement errors into account. Sixth, not all reasons for living and/or meaning in life are linear in nature (Baumeister, 2015).

Moreover, newly generated and/or strengthened reasons for living can emerge during the recovery process from a suicidal state. For instance, a new cycle of goal-defined motivation may show a recursive relationship with experience-defined motivation in the self-regulation of motivation. The stable and recursive relationship between experience-defined motivation and goal-defined motivation is expected to deviate from the linear relationship between types of motivation (such as goal-defined and experience-defined motivation). Instead, levels of motivation may indicate cycles of mutual influence that are self-sustaining, supporting the suggestion that processes of

dynamic change occur in the complex SRM system. Thus, the current study provided limited information on the nature of types of goal-defined motivation and experience-defined motivation.

Seventh, examining the actual vocal expression of participants during the intervention and types may have provided information on the search for meaning in life that was not addressed in the current study. Eighth, because the current results were drawn from a military sample, it remains necessary to look at whether the current findings would replicate across different military samples or nonmilitary populations regardless under clinical and nonclinical conditions. Lastly, examining within-individual variability would provide more nuanced information about how types of motivation and suicide ideation relate to each other for predicting their own and/or others' changes.

Future Directions

A future study may be needed to understand whether a change in the five types of goal-defined motivation (i.e., the five factors of reasons for living) relates to a change in the two directions of experience-defined motivation, such as having meaning in life and searching for meaning in life. The types of coordinated relationships between these two levels of motivation may bring individuals from a suicide to a non-suicide state before and after a clinical intervention. In addition, as noted, this study did not take into account the content of actual vocal expressions of individuals during the intervention sessions. Individuals' actual vocal expressions themselves, explaining the content for their levels of motivation, would reveal how experience-defined motivation emerges, which is a subject not explored in this study.

An individual's vocal quality may contribute to understanding how experience-

defined motivation organically emerges. Hence, vocal expression data needs to be taken into account to better understand the motivation system in the context of suicide. Unlike the extended SRM system, the current study did not examine the trigger, biological, emotional, or behavioral patterns of patients and clinicians during or after the clinical intervention to understand the self-organization of experience-defined motivation. According to the extended SRM system, psycho-behavioral shifts may occur that regulate types and/or levels of motivation during the intervention and/or postintervention period. Whether or not behavioral patterns emerge across such as dimensions as cognition, behavior, and physiology during the clinical intervention can predict individuals' different rates of recovery is another question raised by the extended SRM system that remains to be addressed in new research. Future studies should also measure the interactions between patients and therapists and patients within their close relationships, which may provide vital information on how patients coordinate their motivation during and after engaging in intervention to discover or sustain an optimal self-regulatory system.

Although it is expected that goal-defined motivation will be found conditional upon experience-defined motivation, their interaction may also change the psycho-bio-behavioral topology of motivation by influencing how individuals spend their intervention sessions and how they interact with their therapists and close relationships in their offline and/or online social networks. Most importantly, future suicide research should explore ways in which these multifaceted and multidimensional systems are nested within individual's communities, social systems, cultural systems, and ecological systems and within larger groups, organizations, cities, institutions, societies, nations, and

regions (Capra & Luisi, 2014).

"Life is NOT just C between B and D." It is complex and dynamic. Indeed, it may be a (controlled or uncontrolled) Chance, Choice, Complexity, Challenge, or Change, while we persist as Conquerors and Conquered simultaneously (Kauffman, 1995; Schreodinger, 1992; Wiese, Vallacher, & Strawinska, 2010). Between Birth and Death—between B and D—a life in the process of a recovery from a suicide mode may engender Experience, Fluctuation, and Goals and these Es, Fs, and Gs reflect on a much more complex and dynamic motivation system than C alone suggests.

Table 3

A Summary of Interclass Correlations Among Variables of Interest

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Meaning in life	1											
2. Fear of suicide	.166*	1										
3. Fear of social disapproval	.014	.134	1									
4. Moral objections	.378**	.352**	.214**	1								
5. Responsibility to family	.402**	.264**	.151*	.332**	1							
6. Suicide coping beliefs	.598**	.261**	.168*	.374**	.570**	1						
7. Suicide ideation	-.458**	-.095	.055	-.197**	-.354**	-.412**	1					
8. Number of past suicide attempts	-.070	-.057	-.027	-.076	-.215**	-.075	.114	1				
9. Suicide attempt	-.014	-.082	.041	-.093	-.212**	-.117	.146*	.742**	1			
10. Sex	.142	.239**	.094	.240**	-.002	.211**	-.085	.168*	.008	1		
11. Age	-.062	.079	-.079	.033	.004	.042	-.052	-.040	-.067	-.150*	1	
12. Demographic Suicide ideation	-.206**	-.315**	-.105	-.233**	-.382**	-.380**	.511**	.078	.217**	-.209**	-.206**	1

Note. *$p < .05$, **$p < .01$.

Table 4

Question I Repeated Measures Actor-Partner Interdependence Model Results of Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Subfactor Using Multilevel Modeling

Change in Outcome	Parameter	Three Intervention Conditions									
		B	SE	B	SE	B	SE	B	SE	B	SE
	Intervention	-0.02	0.20	-0.04	0.32	-0.09	0.29	0.15	0.23	0.31	0.29
Meaning in life	**ΔM when the variables equal 0**	**8.26****	**2.84**	**13.76****	**3.82**	**10.13****	**3.34**	**9.19****	**3.46**	**13.26****	**3.71**
	Meaning in life	**-0.50****	**0.1**	**-0.51****	**0.10**	**-0.49****	**0.11**	**-0.53****	**0.11**	**-0.45****	**0.13**
	Each reasons for living subfactor	0.29	0.23	-0.12	0.16	0.04	0.16	0.16	0.20	-0.22	0.26
Each Reasons for Living (i.e., FS, FSD, MO, RF, & SCB)	**ΔR when the variables equal 0**	1.06	2.05	**7.83***	**3.35**	2.93	2.83	3.21	2.46	**9.50****	**3.04**
	Each reasons for living subfactor	**-0.40****	**0.09**	**-0.62****	**0.10**	**-0.35****	**0.09**	-0.13	0.08	**-0.76****	**0.14**
	Meaning in life	0.05	0.04	0.02	0.07	0.10	0.06	-0.01	0.05	0.09	0.07
Disturbance	Number of past suicide attempts	0.32	0.32	0.27	0.49	0.32	0.44	0.53	0.35	0.31	0.44
	Suicide attempt	-0.75	0.79	-0.55	1.21	-1.73	1.10	-1.15	0.87	-1.27	1.11
	Sex	-0.17	0.39	-0.42	0.56	0.10	0.55	0.10	0.42	-0.18	0.54
	Age	0.03	0.05	-0.07	0.08	-0.01	0.07	-0.01	0.06	0.02	0.08
	Suicide ideation	-0.06	0.05	-0.06	0.07	-0.04	0.06	-0.08	0.05	-0.14*	0.07

Note. **p* < .05, ***p* = or < .01. **Δ**M indicates change in meaning in life and **Δ**R indicates change in each reasons for living.

Table 5

Question II Repeated Measures Actor-Partner Interdependence Model Results of Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Using Multilevel Modeling for Augment Condition

Change in Outcome	Parameter	Augment Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	ΔM when the variables equal 0	7.40	6.21	**24.81****	**6.01**	6.13	5.74	8.93	6.11	6.99	6.52
	Strength of meaning in life	**-0.44****	**0.16**	**-0.62****	**0.14**	**-0.45****	**0.17**	**-0.58****	**0.18**	**-0.63****	**0.22**
	Coupling of each reasons for living	0.40	0.52	**-0.63***	**0.29**	-0.23	0.30	0.24	0.40	0.46	0.52
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	ΔR when the variables equal 0	-2.26	4.47	6.95	5.07	-6.84	4.40	0.30	3.98	1.65	4.93
	Strength of each reasons for living subfactor	**-0.60***	**0.25**	**-0.47***	**0.19**	-0.19	0.14	-0.12	0.15	-0.35	0.26
	Coupling of meaning in life	**0.17***	**0.08**	0.09	0.09	0.09	0.08	0.02	0.07	0.08	0.11
Disturbance	Number of past suicide attempts	3.90**	1.27	2.21	1.38	0.45	1.40	1.67	1.13	2.49	1.28
	Suicide attempt	-6.05*	2.27	-3.18	2.45	-0.20	2.47	-2.30	2.00	-4.81	2.36
	Sex	-0.68	0.93	-0.19	0.93	0.03	1.00	0.22	0.75	-1.01	0.85
	Age	0.14	0.12	-0.20	0.13	0.30*	0.13	0.08	0.11	0.16	0.12
	Suicide ideation	-0.12	0.09	-0.05	0.10	-0.07	0.10	-0.09	0.08	-0.09	0.09

Note. *p < .05, **p = or < .01. ΔM indicates change in meaning in life and ΔR indicates change in each reasons for living.

Table 6

Question II Repeated Measures Actor-Partner Interdependence Model Results of Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Using Multilevel Modeling for CRP Condition

Change in Outcome	Parameter	CRP Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	**Δ**M when the variables equal 0	3.47	5.60	3.70	8.67	7.65	7.33	11.20	6.59	7.01	7.31
	Strength of meaning in life	**-0.40***	**0.18**	**-0.48***	**0.21**	-0.37	0.21	-0.35	0.19	-0.24	0.24
	Coupling of each reasons for living	-0.29	0.45	0.23	0.29	0.20	0.31	-0.22	0.31	-0.41	0.46
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	**Δ**R when the variables equal 0	-2.59	4.23	2.28	8.13	3.80	6.59	2.36	5.02	3.27	6.19
	Strength of each reasons for living	**-0.49****	**0.17**	**-0.53****	**0.20**	**-0.60****	**0.18**	-0.05	0.12	**-0.60****	**0.22**
	Coupling of meaning in life	-0.02	0.07	-0.02	0.15	0.24	0.12	0.00	0.08	0.09	0.12
Disturbance	Number of past suicide attempts	-0.56	0.96	0.81	1.88	-0.04	1.59	-0.14	1.04	1.10	1.38
	Suicide attempt	-1.02	1.77	-2.99	3.48	-3.02	2.89	-1.06	1.98	-4.33	2.59
	Sex	-0.63	0.71	-1.13	1.32	1.16	1.13	-0.41	0.78	0.10	1.03
	Age	0.21	0.12	0.07	0.22	-0.08	0.19	-0.03	0.13	0.04	0.17
	Suicide ideation	0.05	0.11	0.15	0.20	0.00	0.17	-0.02	0.12	0.14	0.15

Note. *p < .05, **p = or < .01. **Δ**M indicates change in meaning in life and **Δ**R indicates change in each reasons for living.

Table 7

Question II Repeated Measures Actor-Partner Interdependence Model Results of Two Simultaneous Changes in Meaning in Life and Each Reasons for Living Using Multilevel Modeling for TAU Condition

Change in Outcome	Parameter	TAU Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	**Δ**M when the variables equal 0	**14.88****	**4.42**	**20.90****	**7.32**	**12.98***	**6.02**	10.63	6.65	**24.00****	**6.41**
	Strength of meaning in life	**-0.83****	**0.19**	**-0.75****	**0.19**	**-0.76****	**0.22**	**-0.79****	**0.20**	**-0.56****	**0.21**
	Coupling of each reasons for living	0.65	0.35	-0.19	0.26	0.26	0.29	0.49	0.33	-0.66	0.41
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	**Δ**R when the variables equal 0	6.11	3.26	**15.83***	**6.75**	3.60	5.24	8.05	5.46	**20.05****	**5.43**
	Strength of each reasons for living	**-0.38****	**0.13**	**-0.85****	**0.19**	**-0.30***	**0.14**	-0.29	0.18	**-1.29****	**0.23**
	Coupling of meaning in life	0.00	0.06	-0.08	0.14	0.15	0.11	-0.03	0.11	0.08	0.12
Disturbance	Number of past suicide attempts	-0.10	0.35	-0.50	0.68	0.34	0.56	0.18	0.57	-0.27	0.55
	Suicide attempt	0.30	1.12	1.74	2.12	-1.60	1.79	0.11	1.69	1.31	1.78
	Sex	-0.26	0.54	-0.76	0.98	0.02	0.87	0.26	0.84	-0.96	0.89
	Age	-0.09	0.08	-0.13	0.15	-0.02	0.13	-0.06	0.12	-0.01	0.13
	Suicide ideation	-0.11	0.07	-0.20	0.12	-0.10	0.10	-0.18	0.10	-0.40**	0.11

Note. *p < .05, **p = or < .01. **Δ**M indicates change in meaning in life and **Δ**R indicates change in each reasons for living.

Table 8

Question III Repeated Measures Actor-Partner Interdependence Model Results of Three Simultaneous Changes in Meaning in Life and Each Reasons for Living, and Suicide Ideation Using Multilevel Modeling

Change in Outcome	Parameter	All Intervention Conditions									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
	Intervention	0.12	0.19	0.11	0.26	0.07	0.25	0.28	0.21	0.42	0.25
Meaning in life	ΔM when the variables equal 0	**6.94****	**3.11**	**10.85****	**3.72**	**9.02****	**3.39**	7.07	3.77	**10.33****	**3.88**
	Strength of meaning in life	**-0.54****	**0.11**	**-0.53****	**0.11**	**-0.52****	**0.11**	**-0.56****	**0.11**	**-0.47****	**0.13**
	Coupling of each reasons for living	0.34	0.23	-0.13	0.16	0.00	0.16	0.24	0.20	-0.22	0.26
	Coupling of suicide ideation	-0.09	0.09	-0.10	0.09	-0.09	0.09	-0.05	0.09	-0.09	0.09
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	ΔR when the variables equal 0	-0.85	1.94	4.21	2.94	-0.08	2.52	-0.46	2.31	**5.98***	**2.72**
	Strength of each reasons for living	**-0.35****	**0.09**	**-0.54****	**0.10**	**-0.35****	**0.09**	-0.08	0.08	**-0.70****	**0.14**
	Coupling of suicide ideation	-0.05	0.04	-0.11†	0.06	-0.03	0.05	0.04	0.04	-0.09	0.05
	Coupling of meaning in life	0.02	0.04	-0.01	0.07	0.09	0.06	-0.01	0.05	0.04	0.07
Suicide ideation	ΔS when the variables equal 0	**8.43****	**3.37**	**9.82****	**3.95**	**8.49***	**3.58**	**14.83****	**4.20**	**11.10****	**4.19**

Table 8 (Continued)

Change in Outcome	Parameter	All Intervention Conditions									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Suicide ideation (continued)	**Strength of suicide ideation**	**-0.93****	**0.10**	**-0.97****	**0.10**	**-0.97****	**0.10**	**-0.97****	**0.10**	**-0.98****	**0.11**
	Coupling of meaning in life	-0.05	0.12	-0.10	0.12	-0.06	0.13	0.02	0.13	0.02	0.14
	Coupling of each reasons for living	**-0.52***	**0.26**	-0.16	0.17	-0.16	0.17	**-0.60****	**0.23**	-0.47	0.29
Disturbance	Number of past suicide attempts	0.21	0.28	0.01	0.37	0.12	0.35	0.27	0.30	0.09	0.35
	Suicide attempt	-0.55	0.70	0.05	0.93	-0.69	0.87	-0.70	0.74	-0.56	0.88
	Sex	-0.48	0.36	-0.66	0.45	-0.58	0.45	-0.29	0.37	-0.69	0.44
	Age	0.08	0.05	0.00	0.07	0.03	0.06	0.04	0.05	0.07	0.06
	Suicide ideation	0.06	0.05	0.12*	0.06	0.12*	0.06	0.02	0.05	0.08	0.06

Note. **p* < .05, ***p* = or < .01. **Δ**M indicates change in meaning in life, **Δ**R indicates change in each reasons for living, **Δ**S indicates change in suicide ideation.

Table 9

Question IV Repeated Measures Actor-Partner Interdependence Model Results of Three Simultaneous Changes in Meaning in Life and Each Reasons for Living, and Suicide Ideation Using Multilevel Modeling for Augment Condition

Change in Outcome	Parameter	Augment Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	ΔM when the variables equal 0	-2.49	5.95	12.12	6.85	1.91	6.14	-5.11	7.22	-2.22	6.82
	Strength of meaning in life	**-0.40***	**0.18**	**-0.48***	**0.18**	**-0.39***	**0.19**	**-0.49***	**0.20**	**-0.49***	**0.23**
	Coupling of each reasons for living	0.65	0.50	-0.54	0.30	-0.44	0.28	0.50	0.38	0.35	0.49
	Coupling of suicide ideation	0.02	0.22	0.12	0.20	0.14	0.21	0.20	0.21	0.16	0.20
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	ΔR when the variables equal 0	**-10.61****	**3.81**	-3.89	5.38	**-9.36***	**4.06**	**-8.84***	**3.52**	-6.14	3.80
	Strength of each reasons for living	-0.57	0.29	-0.35	0.22	-0.13	0.15	0.00	0.15	-0.32	0.23
	Coupling of suicide ideation	0.00	0.12	-0.03	0.14	-0.17	0.11	0.02	0.08	0.00	0.09
	Coupling of meaning in life	0.16	0.09	0.15	0.13	0.04	0.10	0.01	0.08	0.09	0.11

Table 9 (Continued)

Change in Outcome	Parameter	Augment Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Suicide ideation	**Δ**S when the variables equal 0	-2.78	6.46	3.18	7.52	-7.56	6.70	11.66	6.95	2.27	7.80
	Strength of suicide ideation	**-1.11****	**0.25**	**-1.15****	**0.23**	**-1.18****	**0.22**	**-1.30****	**0.20**	**-1.19****	**0.23**
	Coupling of meaning in life	0.10	0.21	0.07	0.21	0.06	0.20	0.23	0.18	0.24	0.24
	Coupling of each reasons for living	-0.36	0.51	-0.01	0.33	0.41	0.30	**-1.15****	**0.37**	-0.62	0.55
Disturbance	Number of past suicide attempts	0.49	0.89	0.37	1.00	-0.47	1.07	-0.19	0.83	0.18	0.84
	Suicide attempt	-2.18	1.43	-1.51	1.58	-0.62	1.74	-0.95	1.35	-2.17	1.41
	Sex	-1.67*	0.61	-1.86**	0.64	-1.93*	0.73	-1.25*	0.54	-2.13**	0.55
	Age	0.45**	0.10	0.15	0.13	0.46**	0.12	0.38**	0.09	0.42**	0.10
	Suicide ideation	0.09	0.07	0.10	0.08	0.15	0.08	0.09	0.06	0.10	0.06

Note. **p* < .05, ***p* = or < .01. **Δ**M indicates change in meaning in life, **Δ**R indicates change in each reasons for living, **Δ**S indicates change in suicide ideation.

Table 10

Question IV Repeated Measures Actor-Partner Interdependence Model Results of Three Simultaneous Changes in Meaning in Life and Each Reasons for Living, and Suicide Ideation Using Multilevel Modeling for CRP Condition

Change in Outcome	Parameter	CRP Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	ΔM when the variables equal 0	6.17	5.57	6.56	7.30	8.23	6.83	12.88	6.78	10.22	6.81
	Strength of meaning in life	**-0.46***	**0.18**	**-0.52****	**0.20**	**-0.47****	**0.20**	**-0.42***	**0.19**	-0.30	0.22
	Coupling of each reasons for living	-0.01	0.49	0.34	0.29	0.18	0.30	-0.14	0.31	-0.44	0.43
	Coupling of suicide ideation	-0.27	0.18	**-0.38***	**0.17**	**-0.33***	**0.16**	-0.31	0.16	**-0.34***	**0.16**
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	ΔR when the variables equal 0	-1.84	3.95	0.46	6.50	-0.29	5.82	1.01	4.95	2.66	5.36
	Strength of each reasons for living	-0.40	0.19	**-0.44***	**0.19**	**-0.59****	**0.19**	-0.03	0.14	**-0.59***	**0.23**
	Coupling of suicide ideation	-0.08	0.07	-0.06	0.12	0.01	0.10	-0.05	0.07	-0.09	0.09
	Coupling of meaning in life	-0.04	0.07	0.01	0.14	0.19	0.13	-0.01	0.09	0.06	0.12

Table 10 (Continued)

Change in Outcome	Parameter	CRP Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Suicide ideation	**Δ**S when the variables equal 0	6.96	6.16	10.17	7.64	10.46	7.05	13.74	7.74	9.71	7.53
	Strength of suicide ideation	**-1.00****	**0.20**	**-0.98****	**0.20**	**-1.10****	**0.19**	**-1.07****	**0.19**	**-1.11****	**0.19**
	Coupling of meaning in life	-0.11	0.22	0.03	0.24	0.07	0.24	-0.04	0.24	0.02	0.27
	Coupling of each reasons for living	-0.51	0.57	-0.55	0.36	-0.52	0.34	-0.30	0.39	-0.42	0.53
Disturbance	Number of past suicide attempts	0.10	0.98	-0.23	1.53	0.04	1.43	-0.12	1.15	0.75	1.27
	Suicide attempt	-2.15	1.77	-1.85	2.97	-2.98	2.67	-1.58	2.07	-3.91	2.36
	Sex	-0.90	0.70	-0.59	1.15	-0.09	1.07	-0.57	0.84	-0.40	0.94
	Age	0.15	0.11	0.05	0.17	0.01	0.16	-0.02	0.12	0.05	0.14
	Suicide ideation	0.17	0.11	0.20	0.18	0.20	0.16	0.09	0.13	0.27	0.14

Note. *p < .05, **p = or < .01. **Δ**M indicates change in meaning in life, **Δ**R indicates change in each reasons for living, **Δ**S indicates change in suicide ideation.

Table 11

Question IV Repeated Measures Actor-Partner Interdependence Model Results of Three Simultaneous Changes in Meaning in Life and Each Reasons for Living, and Suicide Ideation Using Multilevel Modeling for TAU Condition

Change in Outcome	Parameter	TAU Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Meaning in life	ΔM when the variables equal 0	**10.63***	**4.95**	**13.19***	**6.45**	8.00	5.43	4.72	6.17	**14.97***	**6.53**
	Strength of meaning in life	**-0.81****	**0.20**	**-0.73****	**0.21**	**-0.76****	**0.23**	**-0.80****	**0.20**	**-0.58****	**0.22**
	Coupling of each reasons for living	**0.75***	**0.35**	-0.21	0.26	0.26	0.28	0.62	0.33	-0.52	0.44
	Coupling of suicide ideation	0.00	0.13	-0.13	0.14	-0.06	0.13	0.02	0.13	-0.12	0.14
Each reasons for living subfactor (i.e., FS, FSD, MO, RF, & SCB)	ΔR when the variables equal 0	3.45	3.10	**11.46***	**4.89**	-0.91	3.89	1.83	4.08	**14.64****	**4.29**
	Strength of each reasons for living	**-0.31***	**0.13**	**-0.88****	**0.17**	-0.27	0.15	-0.16	0.16	**-1.28****	**0.23**
	Coupling of suicide ideation	-0.07	0.05	**-0.27****	**0.09**	-0.08	0.07	0.04	0.06	**-0.25****	**0.07**
	Coupling of meaning in life	-0.04	0.07	-0.19	0.13	0.10	0.12	-0.05	0.10	0.01	0.11

Table 11 (Continued)

Change in Outcome	Parameter	TAU Condition									
		Model I		Model II		Model III		Model IV		Model V	
		B	SE	B	SE	B	SE	B	SE	B	SE
Suicide ideation	**ΔS when the variables equal 0**	**13.88***	**5.64**	12.09	6.76	9.65	5.76	**18.55****	**7.16**	13.11	7.14
	Strength of suicide ideation	**-0.90****	**0.15**	**-0.94****	**0.15**	**-0.90****	**0.15**	**-0.91****	**0.15**	**-0.90****	**0.16**
	Coupling of meaning in life	-0.12	0.24	-0.31	0.22	-0.20	0.25	-0.11	0.24	-0.21	0.25
	Coupling of each reasons for living	-0.56	0.42	-0.07	0.27	-0.12	0.30	-0.63	0.39	-0.30	0.47
Disturbance	Number of past suicide attempts	-0.19	0.33	-0.74	0.43	-0.12	0.37	-0.11	0.38	-0.51	0.37
	Suicide attempt	1.22	1.06	3.86**	1.39	1.17	1.25	1.34	1.18	3.29**	1.26
	Sex	-0.49	0.51	-1.14	0.61	-0.72	0.58	-0.60	0.55	-1.30*	0.60
	Age	-0.04	0.07	-0.02	0.09	0.04	0.09	0.00	0.08	0.07	0.09
	Suicide ideation	0.02	0.07	0.15	0.08	0.12	0.08	0.00	0.08	0.00	0.08

Note. *$p < .05$, **$p =$ or $< .01$. **Δ**M indicates change in meaning in life, **Δ**R indicates change in each reasons for living, **Δ**S indicates change in suicide ideation.

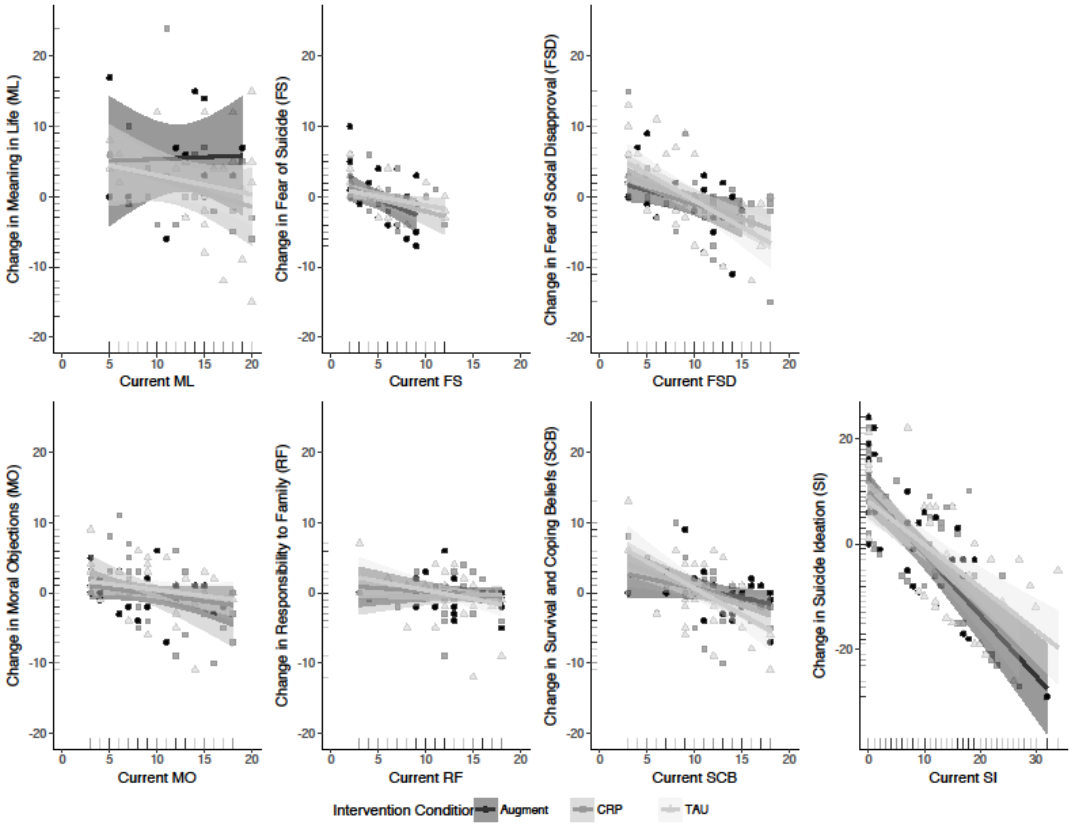


Figure 3. Scatter Plots in Levels of Motivation and Suicide Ideation Using Sum Scores (Change In Each Variable on the Y-Axis and Current Score on the X-Axis).

APPENDIX A

BAR GRAPH OF THE RESULTS OF QUESTION I

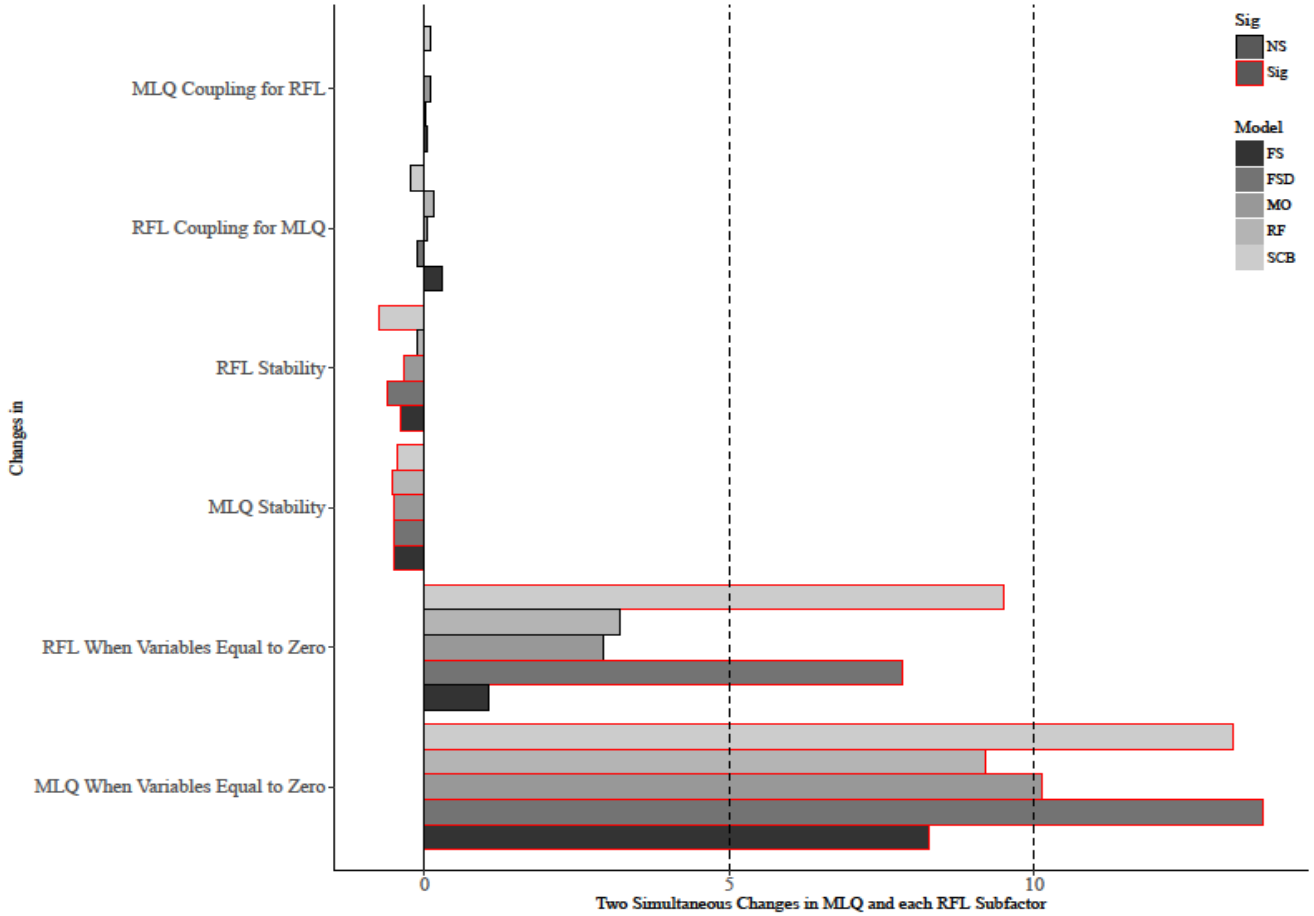


Figure 4. Bar Graph of the Results of Question I.

Note. MLQ: Meaning in life Questionnaire, RFL: Reasons for Living, FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, & SCB: Social coping Beliefs.

APPENDIX B

BAR GRAPH OF THE RESULTS OF QUESTION II IN THE AUGMENT CONDITION: CHANGES IN THE LEVELS MOTIVATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

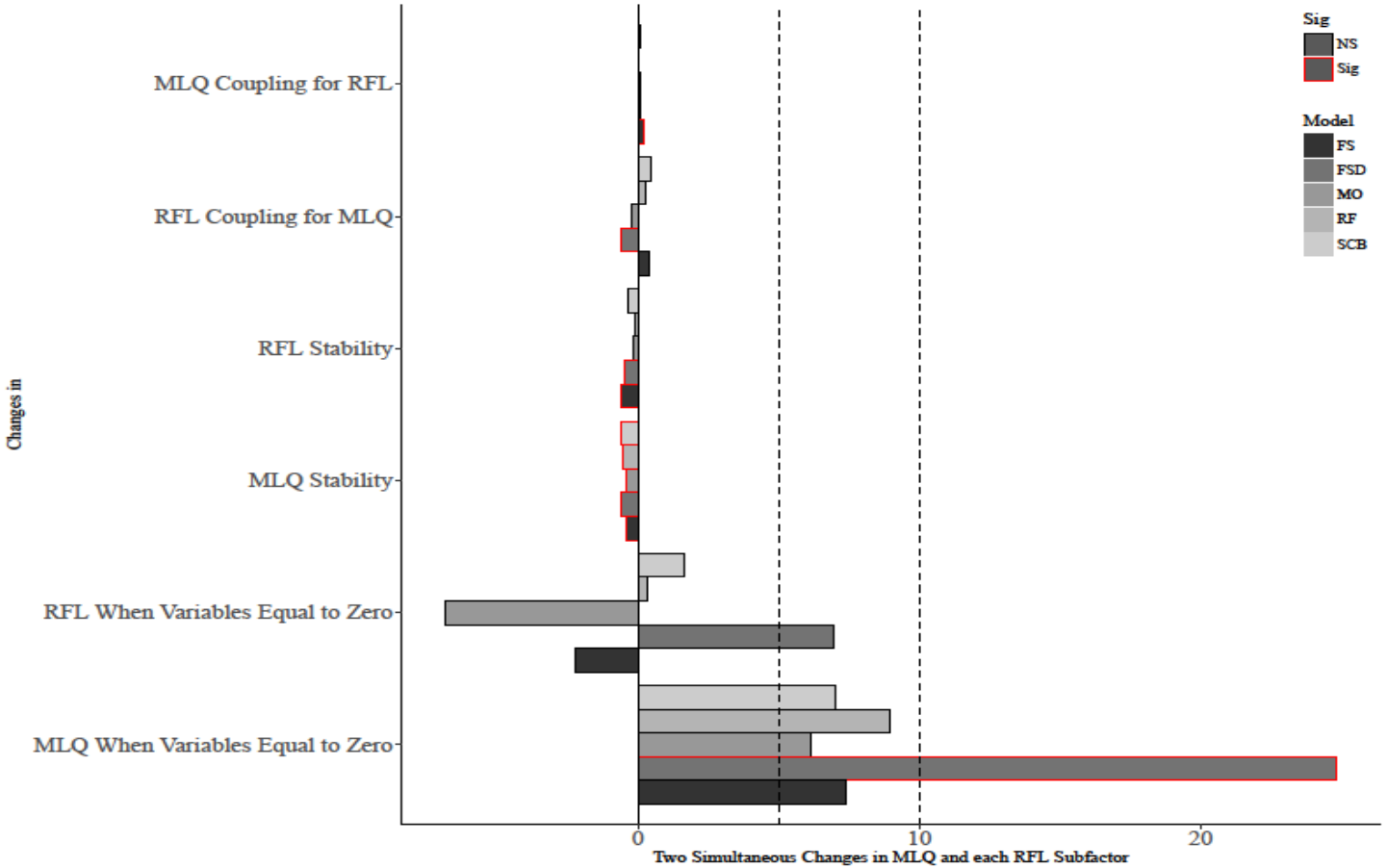


Figure 5. Bar Graph of the Results of Question II in the Augment Condition: Changes in the Levels of Motivation On the Y-Axis and Each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in life Questionnaire, RFL: Reasons for Living, FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, & SCB: Social Coping Beliefs.

APPENDIX C

BAR GRAPH OF THE RESULTS OF QUESTION II IN THE CRP CONDITION: CHANGES IN THE LEVELS OF MOTIVATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

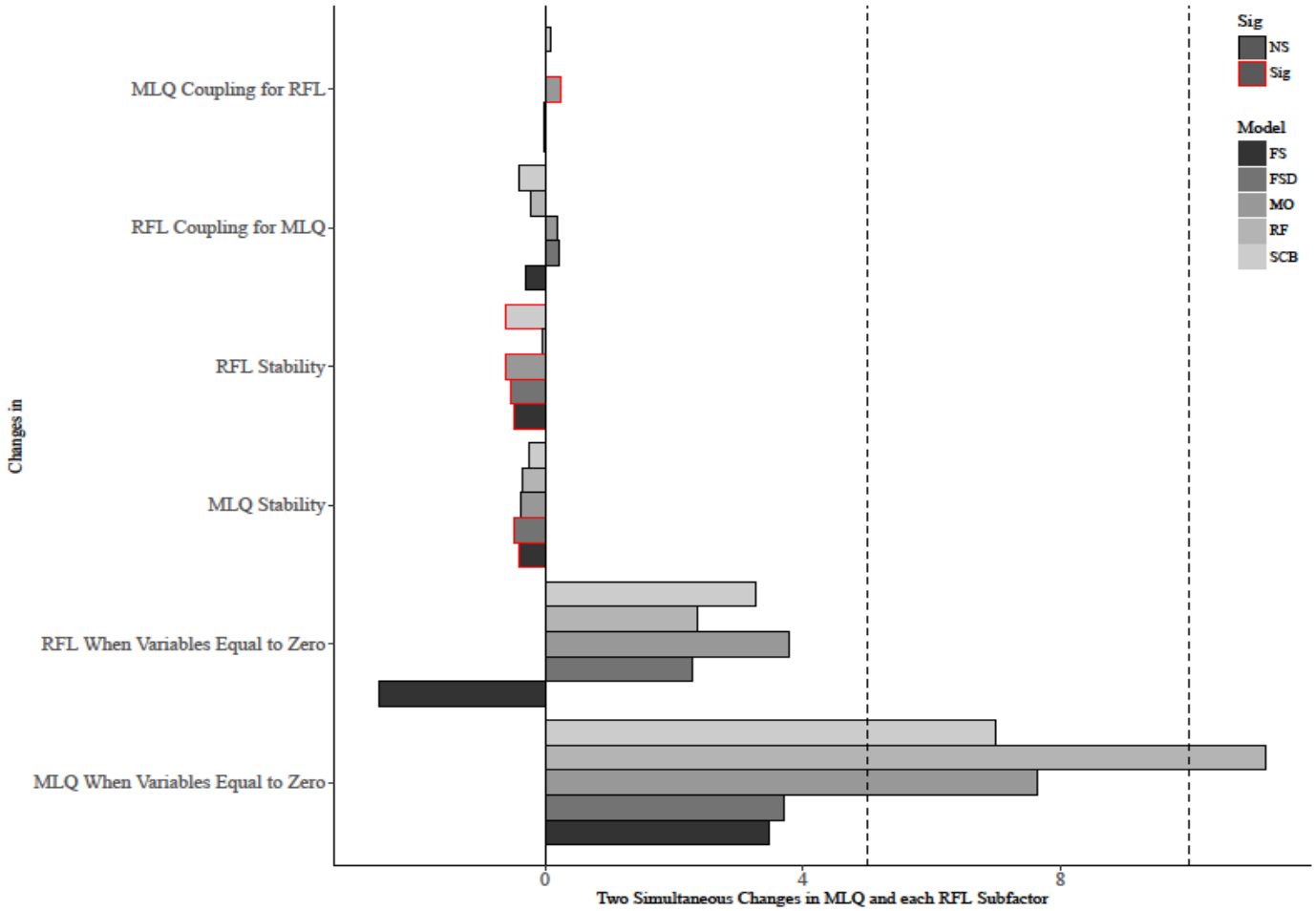


Figure 6. Bar Graph of the Results of Question II in the CRP Condition: Changes in the Levels of Motivation On the Y-Axis and Each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral *Objections, RF: Responsibility to Family, & SCB: Survival and Coping Beliefs.*

APPENDIX D

BAR GRAPH OF THE RESULTS OF QUESTION II IN THE TAU CONDITION: CHANGES IN THE LEVELS OF MOTIVATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

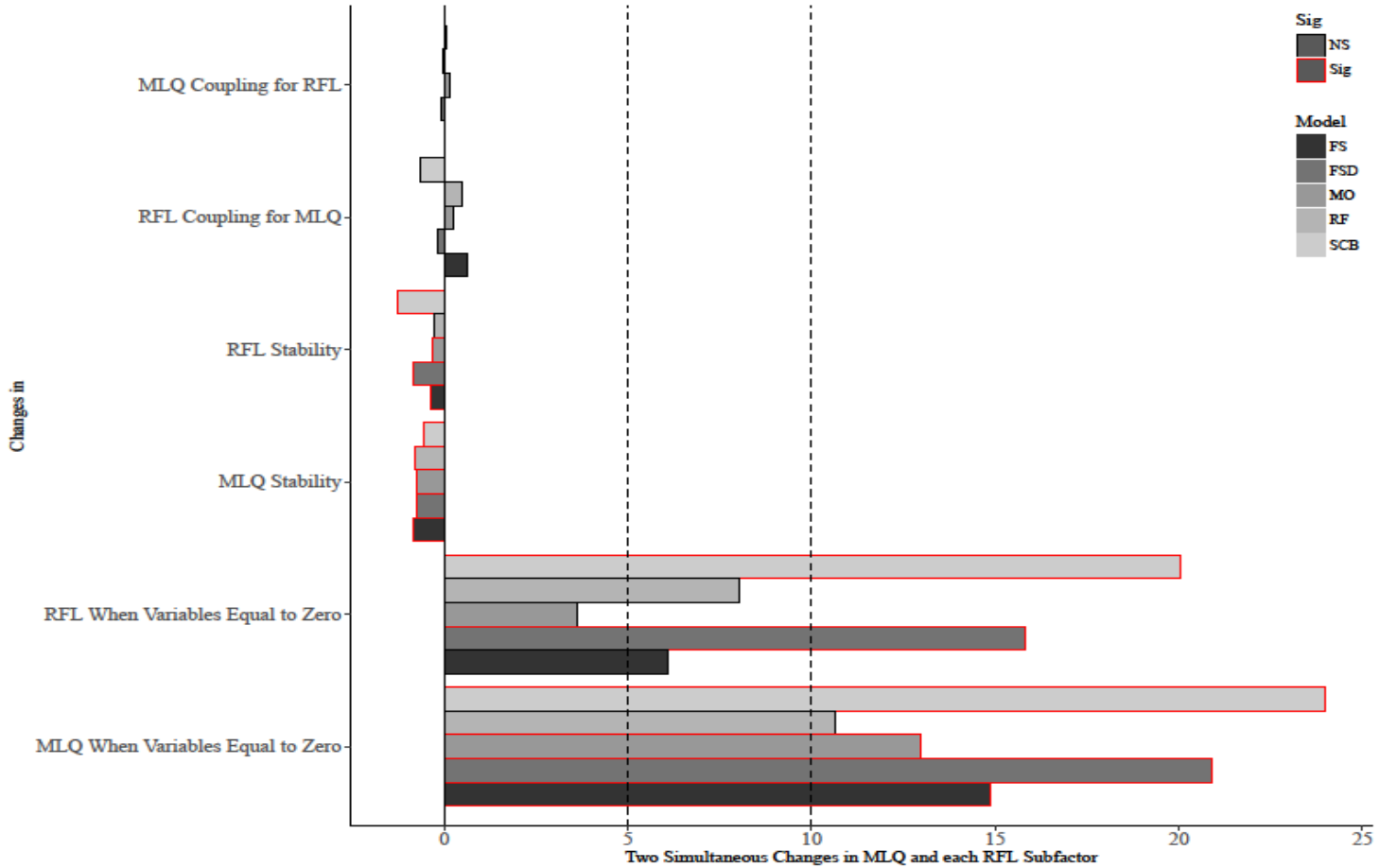


Figure 7. Bar Graph of the Results of Question II in the TAU Condition: Changes in the Levels of Motivation On the Y-Axis and Each Coefficient Value on the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, & SCB: Survival and Coping Beliefs.

APPENDIX E

BAR GRAPH OF THE RESULTS OF QUESTION III:

CHANGES IN THE LEVELS OF MOTIVATION

AND SUICIDE IDEATION ON THE Y-AXIS

AND EACH COEFFICIENT VALUE

ON THE X-AXIS

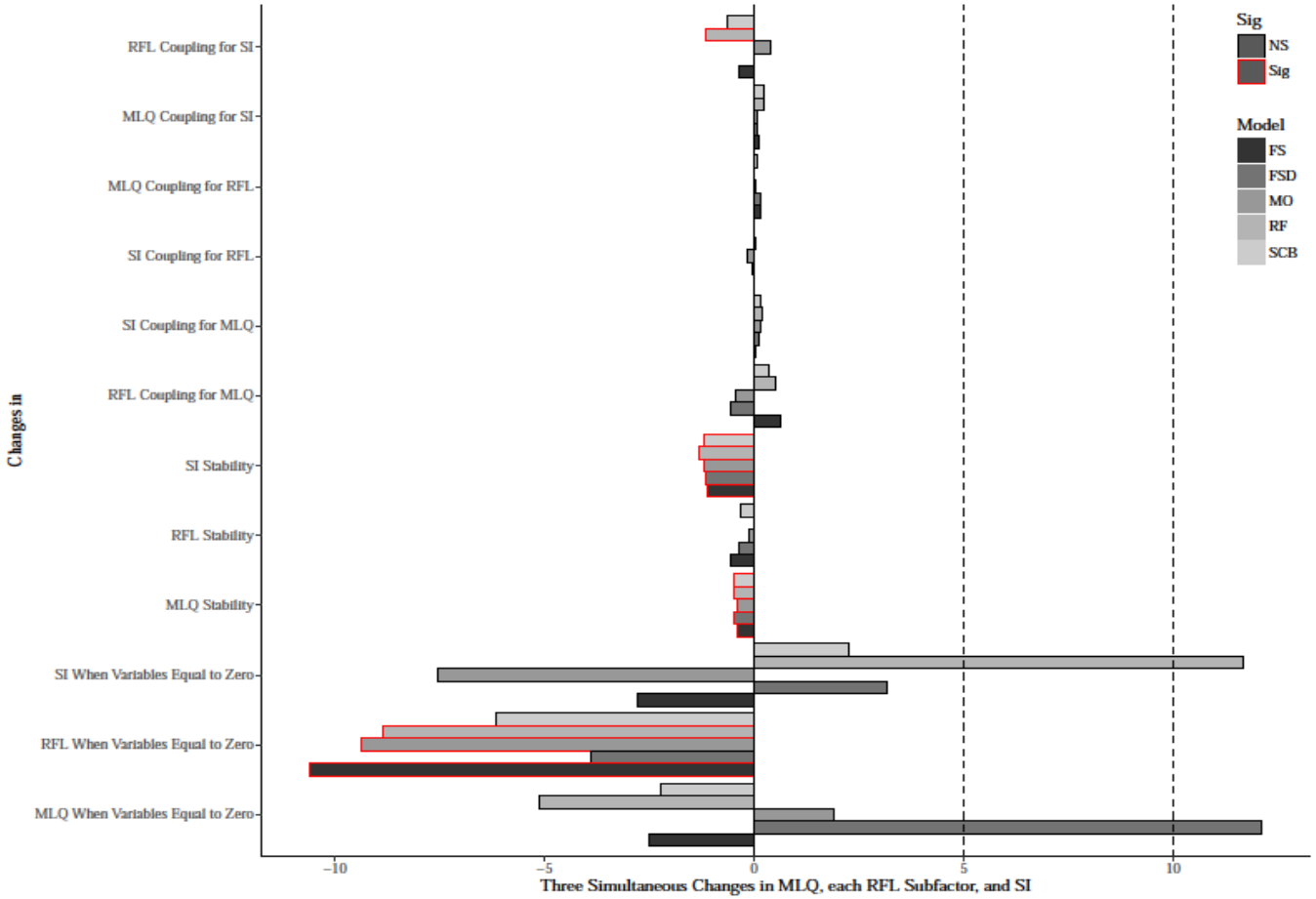


Figure 8. Bar Graph of the Results of Question III: Changes in the Levels of Motivation and Suicide Ideation On the Y-Axis and Each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, SCB: Survival and Coping Beliefs, & SI: Suicide Ideation.

APPENDIX F

BAR GRAPH OF THE RESULTS OF QUESTION IV IN THE AUGMENT CONDITION: CHANGES IN THE LEVELS OF MOTIVATION AND SUICIDE IDEATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

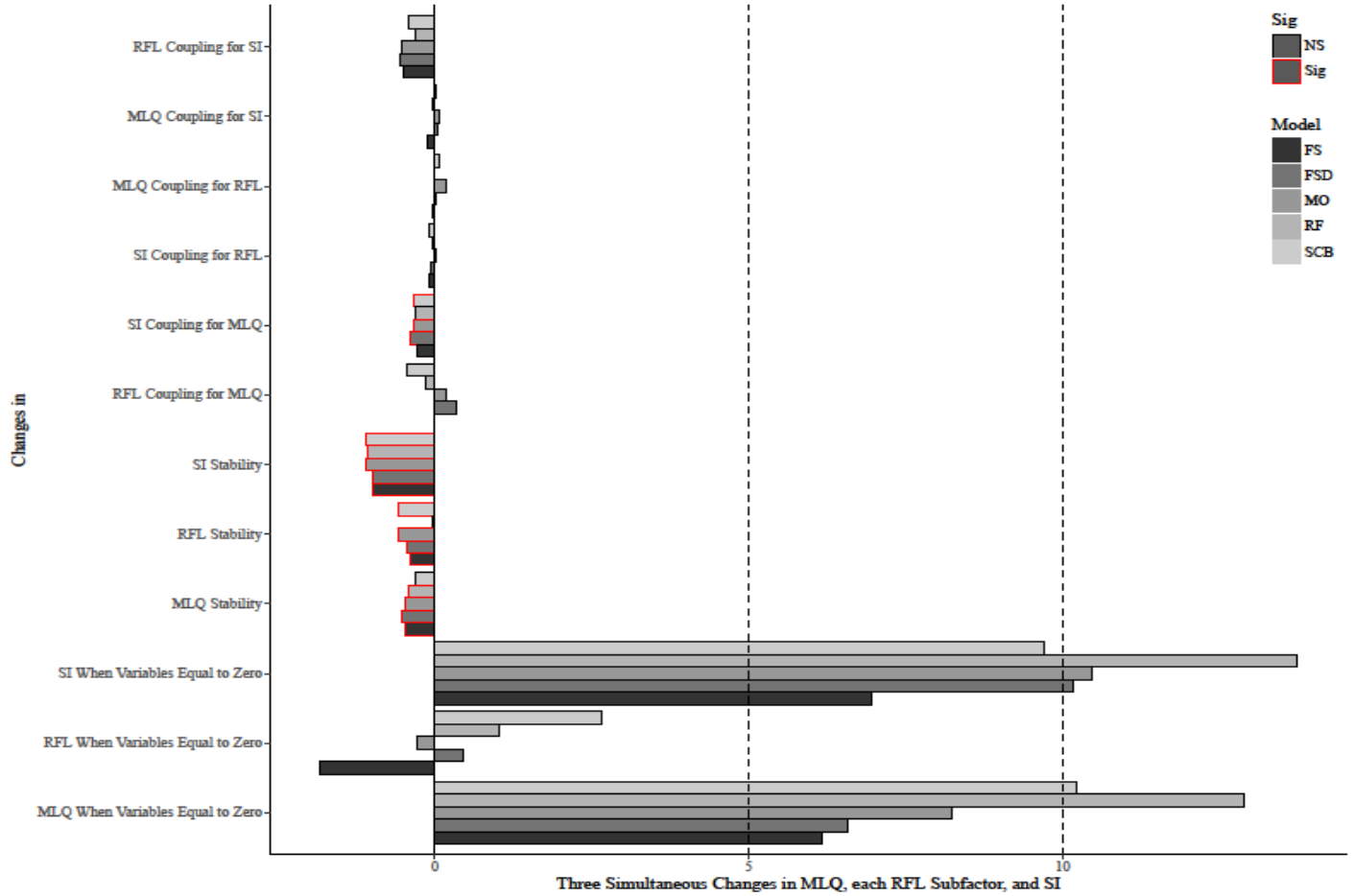


Figure 9. Bar Graph of the Results of Question IV in the Augment Condition: Changes in the Levels of Motivation and Suicide Ideation On the Y-Axis and Each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, SCB: Survival and Coping Beliefs, & SI: Suicide Ideation.

APPENDIX G

BAR GRAPH OF THE RESULTS OF QUESTION IV IN THE CRP CONDITION: CHANGES IN THE LEVELS OF MOTIVATION AND SUICIDE IDEATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

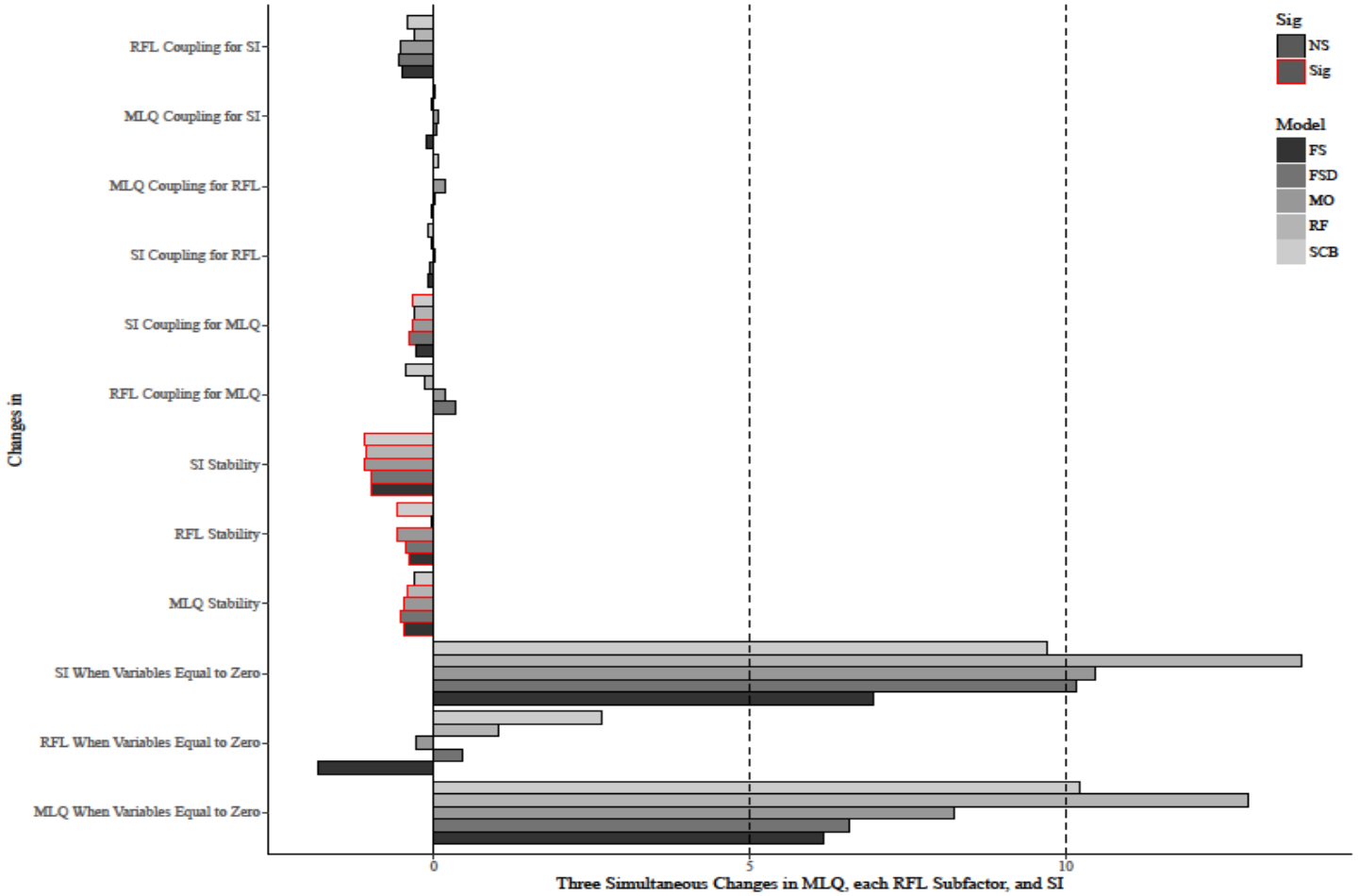


Figure 10. Bar Graph of the Results of Question IV in the CRP Condition: Changes in the Levels of Motivation and Suicide Ideation On the Y-Axis and each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, SCB: Survival and Coping Beliefs, & SI: Suicide Ideation.

APPENDIX H

BAR GRAPH OF THE RESULTS OF QUESTION IV IN THE TAU CONDITION: CHANGES IN THE LEVELS OF MOTIVATION AND SUICIDE IDEATION ON THE Y-AXIS AND EACH COEFFICIENT VALUE ON THE X-AXIS

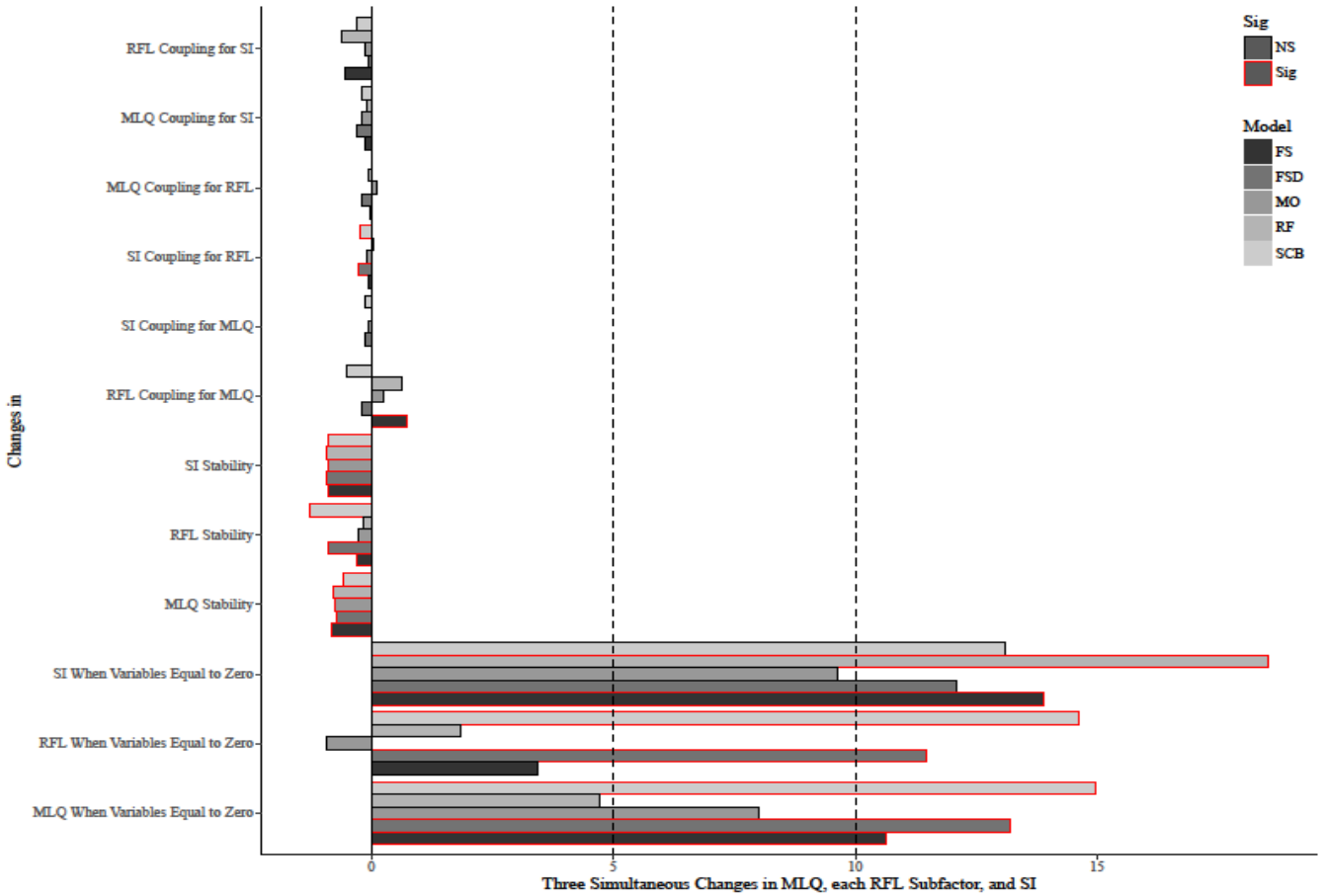
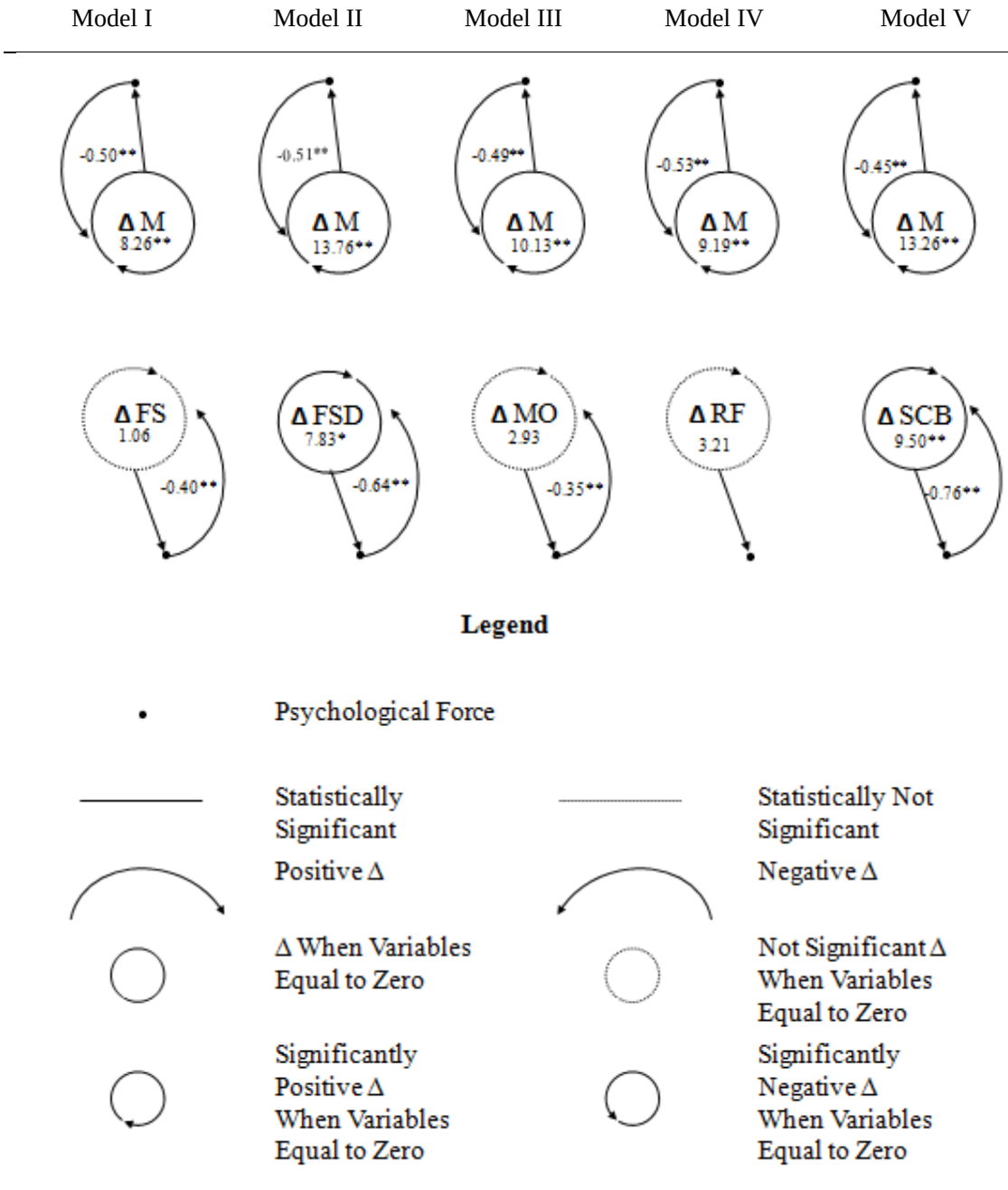


Figure 11. Bar Graph of the Results of Question IV in the TAU Condition: Changes in the Levels of Motivation and Suicide Ideation On the Y-Axis and Each Coefficient Value On the X-Axis.

Note. MLQ: Meaning in Life; FS: Fear of Suicide, FSD: Fear of Social Disapproval, MO: Moral Objections, RF: Responsibility to Family, SCB: Survival and Coping Beliefs, & SI: Suicide Ideation.

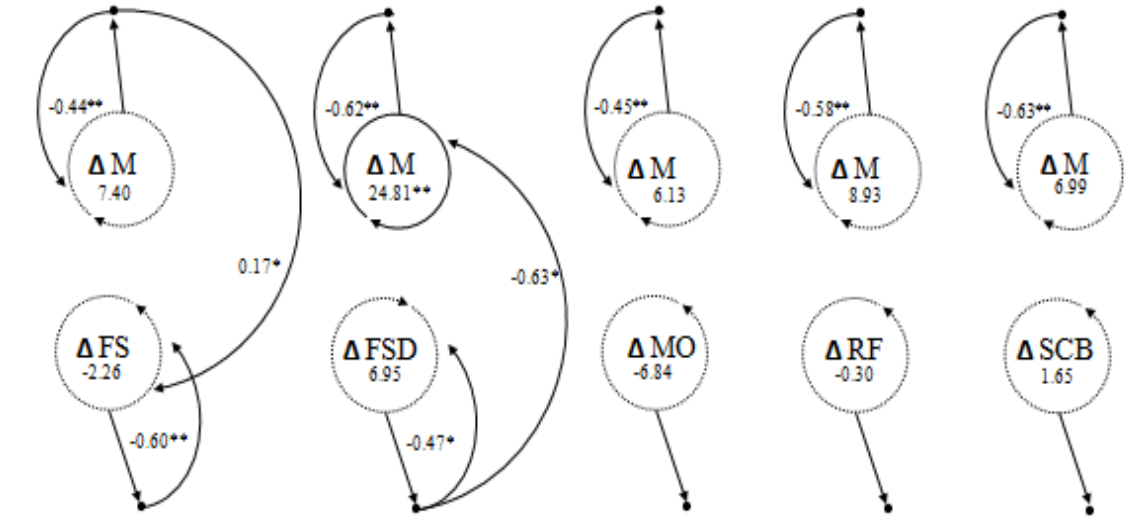
APPENDIX I

RESULTS OF QUESTION I


Model I
Model II
Model III
Model IV
Model V
-0.50**
ΔM
8.26**
-0.51**
ΔM
13.76**
-0.49**
ΔM
10.13**
-0.53**
ΔM
9.19**
-0.45**
ΔM
13.26**
ΔFS
1.06
-0.40**
ΔFSD
7.83*
-0.64**
ΔMO
2.93
-0.35**
ΔRF
3.21
ΔSCB
9.50**
-0.76**
Legend
Psychological Force
Statistically Significant
Statistically Not Significant
Positive Δ
Negative Δ
Δ When Variables Equal to Zero
Not Significant Δ When Variables Equal to Zero
Significantly Positive Δ When Variables Equal to Zero
Significantly Negative Δ When Variables Equal to Zero

APPENDIX J

RESULTS OF QUESTION II FOR AUGMENT CONDITION

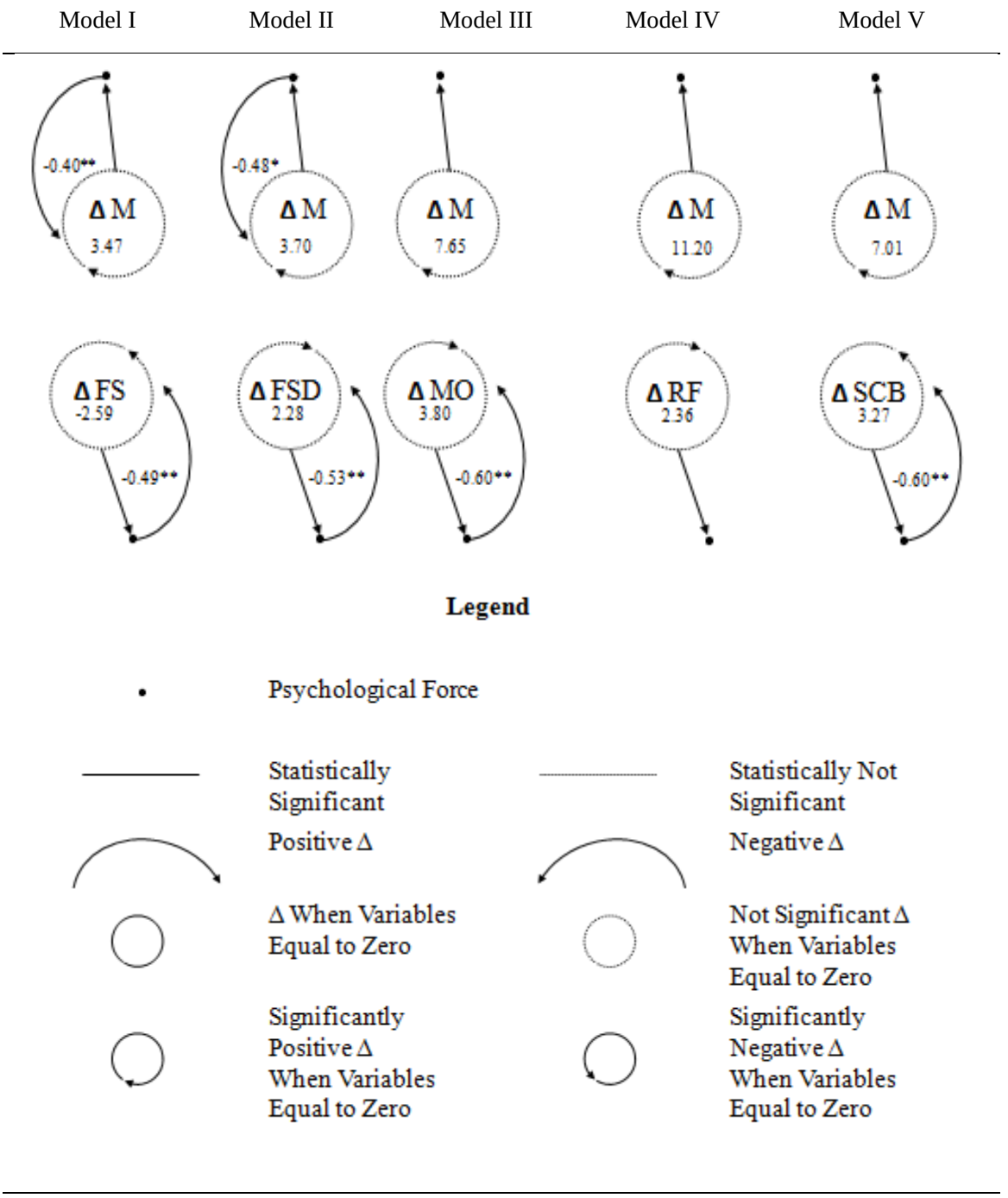


Legend

- Psychological Force
- Statistically Significant
- Statistically Not Significant
- Positive Δ
- Negative Δ
- Δ When Variables Equal to Zero
- Not Significant Δ When Variables Equal to Zero
- Significantly Positive Δ When Variables Equal to Zero
- Significantly Negative Δ When Variables Equal to Zero

APPENDIX K

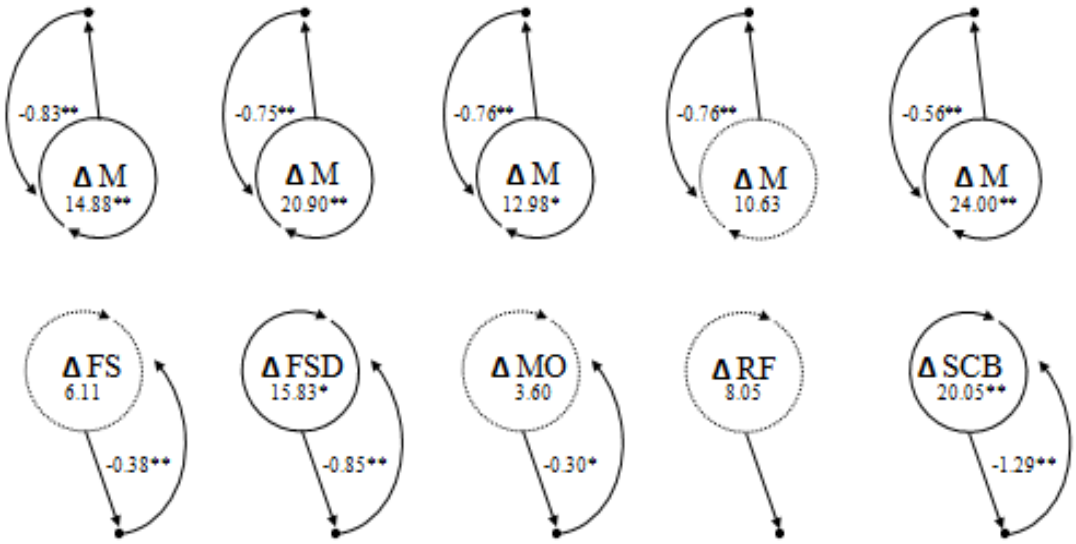
RESULTS OF QUESTION II FOR CRP CONDITION


Model I
Model II
Model III
Model IV
Model V
-0.40**
ΔM
3.47
-0.48*
ΔM
3.70
ΔM
7.65
ΔM
11.20
ΔM
7.01
ΔFS
-2.59
-0.49**
ΔFSD
2.28
-0.53**
ΔMO
3.80
-0.60**
ΔRF
2.36
ΔSCB
3.27
-0.60**
Legend
Psychological Force
Statistically Significant
Statistically Not Significant
Positive Δ
Negative Δ
Δ When Variables Equal to Zero
Not Significant Δ When Variables Equal to Zero
Significantly Positive Δ When Variables Equal to Zero
Significantly Negative Δ When Variables Equal to Zero

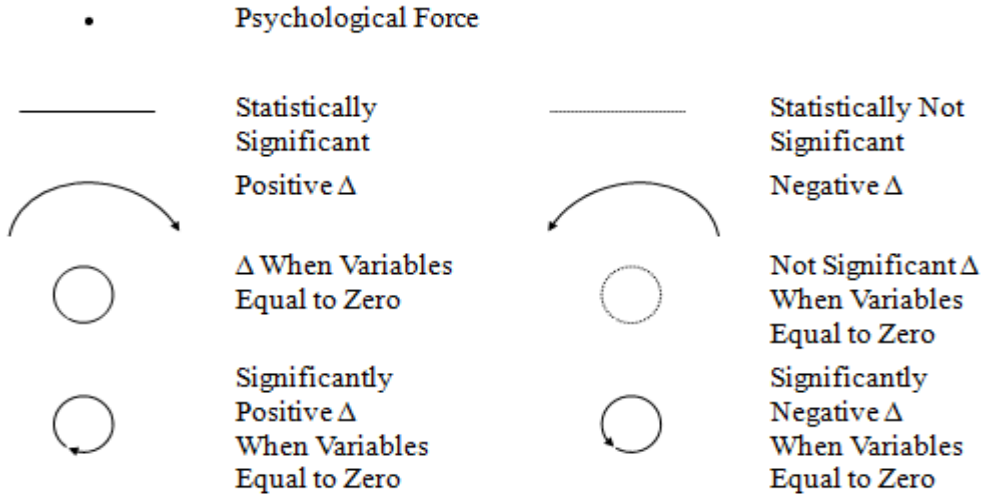
APPENDIX L

RESULTS OF QUESTION II FOR TAU CONDITION

Model I	Model II	Model III	Model IV	Model V

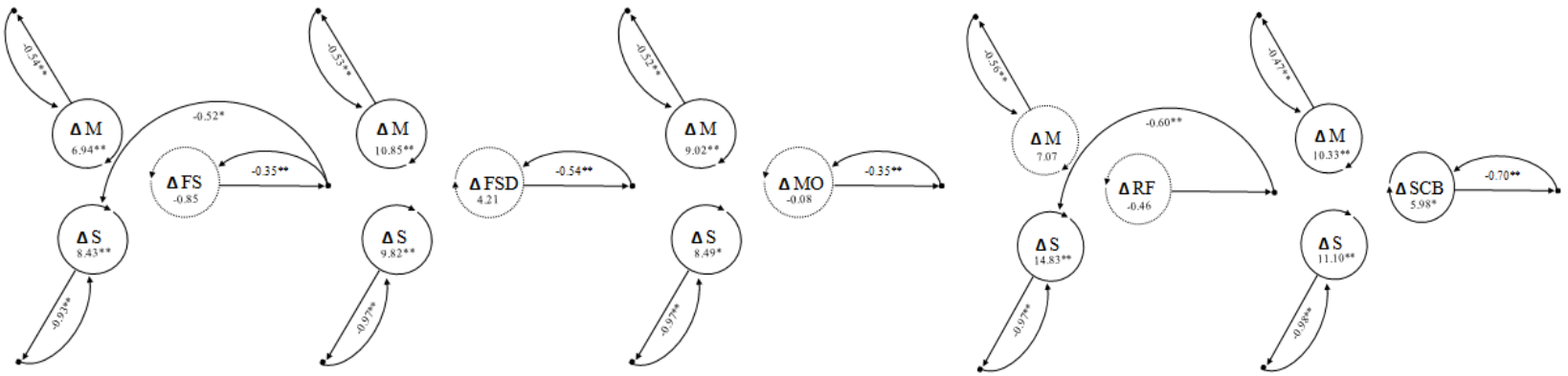


Legend



APPENDIX M

RESULTS OF QUESTION III FOR ALL CONDITIONS

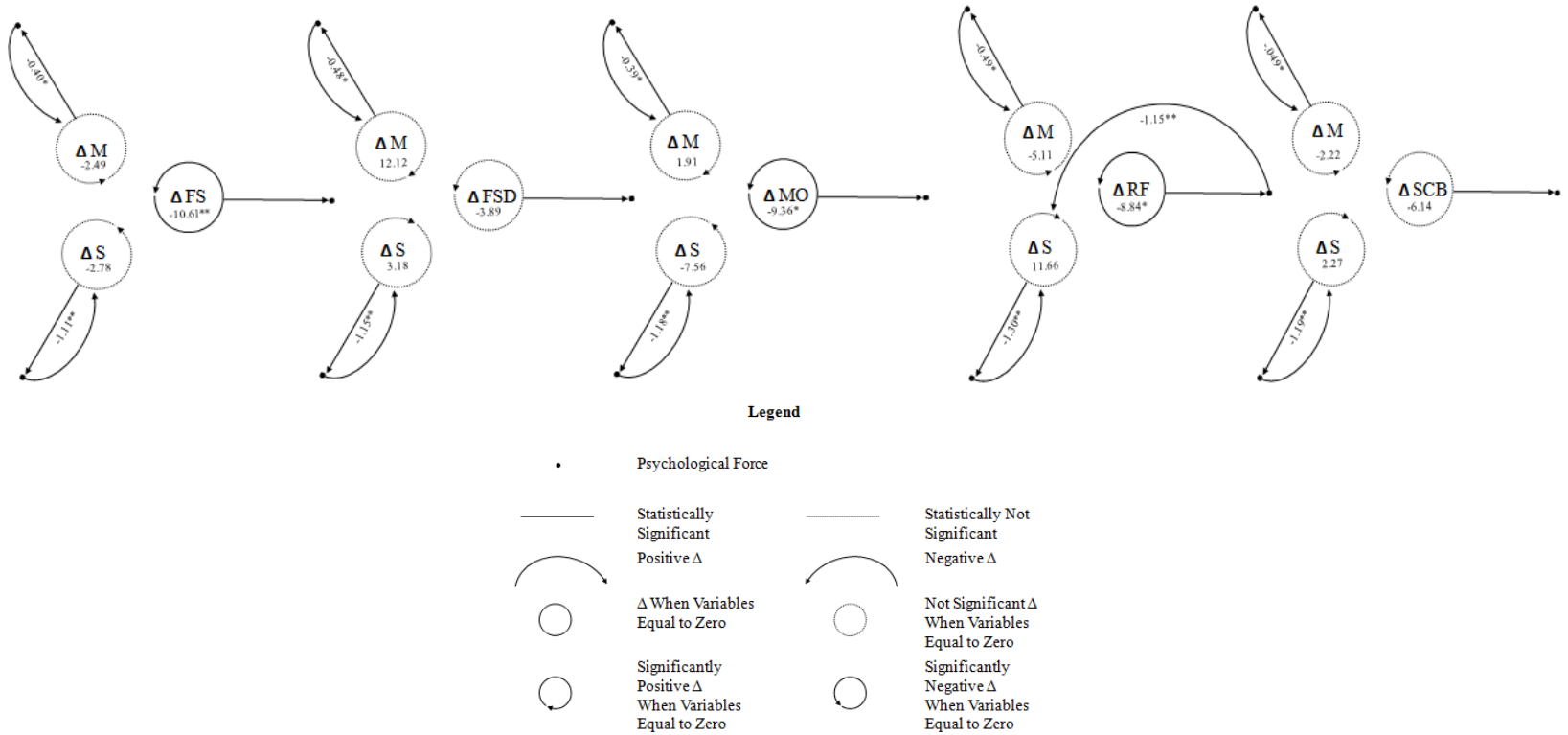


Legend

- Psychological Force
- Statistically Significant
- Statistically Not Significant
- Positive Δ
- Negative Δ
- Δ When Variables Equal to Zero
- Not Significant Δ When Variables Equal to Zero
- Significantly Positive Δ When Variables Equal to Zero
- Significantly Negative Δ When Variables Equal to Zero

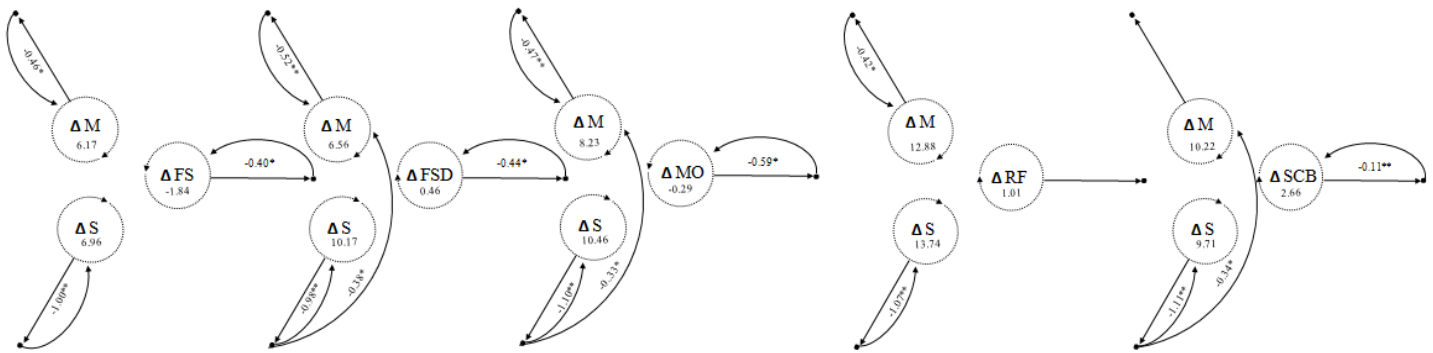
APPENDIX N

RESULTS OF QUESTION IV FOR AUGMENT CONDITION


-0.40*
ΔM
-2.49
ΔS
-2.78
-1.11*
ΔFS
-10.61**
-0.48*
ΔM
12.12
ΔS
3.18
-1.15*
ΔFSD
-3.89
-0.59*
ΔM
1.91
ΔS
-7.56
-1.18*
ΔMO
-9.36*
-0.45*
ΔM
-5.11
ΔS
11.66
-1.30*
-1.15**
ΔRF
-8.84*
-0.45*
ΔM
-2.22
ΔS
2.27
-1.19*
ΔSCB
-6.14
Legend
Psychological Force
Statistically Significant
Statistically Not Significant
Positive Δ
Negative Δ
Δ When Variables Equal to Zero
Not Significant Δ When Variables Equal to Zero
Significantly Positive Δ When Variables Equal to Zero
Significantly Negative Δ When Variables Equal to Zero

APPENDIX O

RESULTS OF QUESTION IV FOR CRP CONDITION

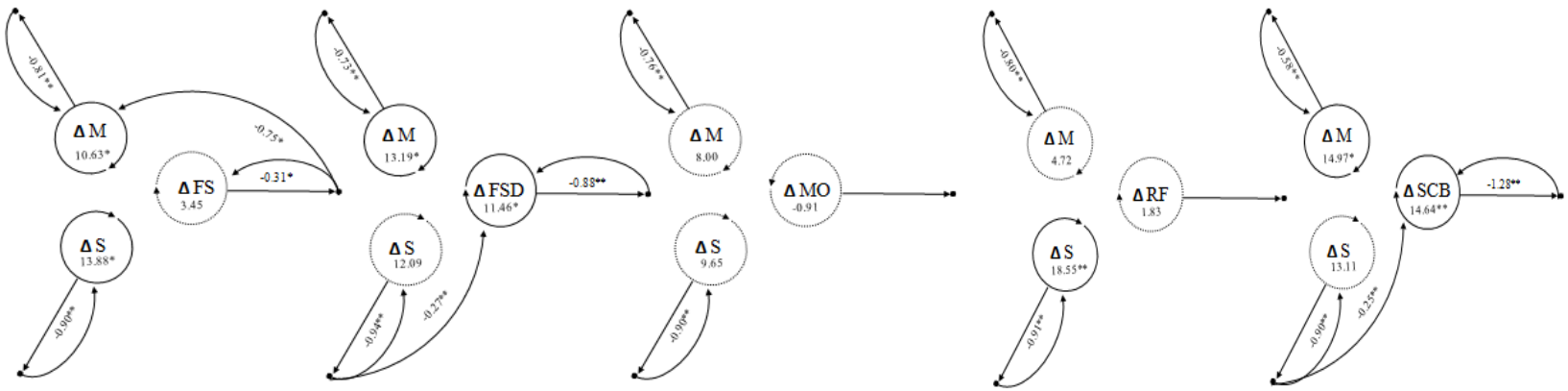


Legend

- Psychological Force
- Statistically Significant
- Statistically Not Significant
- Positive Δ
- Negative Δ
- Δ When Variables Equal to Zero
- Not Significant Δ When Variables Equal to Zero
- Significantly Positive Δ When Variables Equal to Zero
- Significantly Negative Δ When Variables Equal to Zero

APPENDIX P

RESULTS OF QUESTION IV FOR TAU CONDITION



Legend

- Psychological Force
- Statistically Significant
- Statistically Not Significant
- Positive Δ
- Negative Δ
- Δ When Variables Equal to Zero
- Not Significant Δ When Variables Equal to Zero
- Significantly Positive Δ When Variables Equal to Zero
- Significantly Negative Δ When Variables Equal to Zero

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